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OCT 6 1928

MOTOR AGE

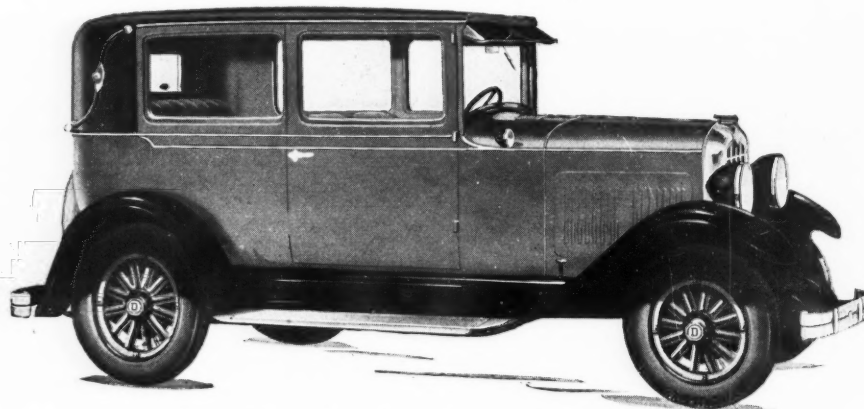
A Chilton Class Journal Publication
Published Weekly October 4, 1928

IS IT EASIER TO MAKE ONE PROFIT IN
THREE SALES—OR THREE TIMES THAT
PROFIT IN ONE SALE? AND THE BIG CAR
IS USUALLY SOLD TO PEOPLE WHO KNOW
CARS AND HAVE MONEY. STUTZ DEALERS
ARE SETTING SOME REMARKABLE NEW
RECORDS THIS YEAR IN PROFIT MAKING.

THE
LOW-WEIGHTED
STUTZ



STUTZ MOTOR CAR COMPANY OF AMERICA, INC., INDIANAPOLIS, IND.



DURANT FOUR TWO-DOOR SEDAN—\$595 f.o.b. Lansing

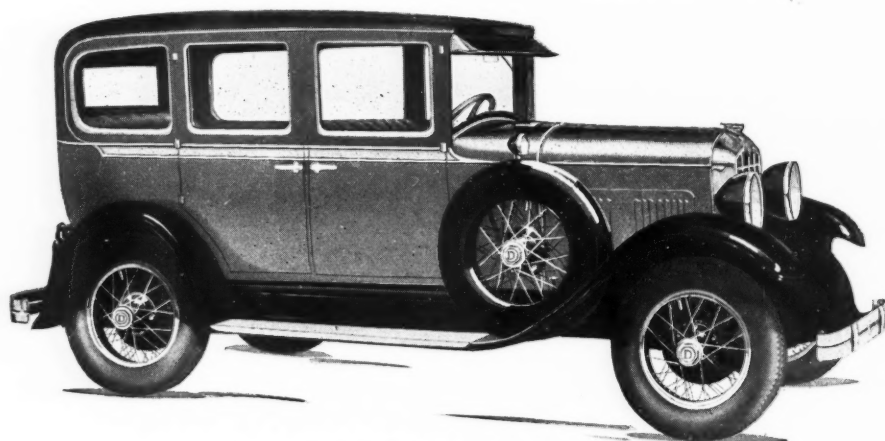
New Models now on display—

DURANT Four and "60"

New advanced body lines • New brilliant colors • More roomy interiors
 Quiet bodies—the result of exclusive development of Durant body engineers • Chromium plating on all exterior metal fittings • 17-inch flat thin-grip steering wheel • Bendix quiet positive four-wheel brakes • Balanced Continental Motors of special Durant design • De luxe models with six wire wheels—spares mounted in fender wells • Longer wheelbase and lower prices on the "60" series

The introduction of these highly attractive new models represents a distinct advance in the value of the Durant franchise

DURANT MOTORS, INC. • 250 West 57th Street New York, N. Y.
 Factories at ELIZABETH, N. J.; LANSING, MICH.; OAKLAND, CALIF.; TORONTO, CANADA



DURANT "60" DE LUXE FOUR-DOOR SEDAN—\$935 f.o.b. Lansing

DURANT

456 SIZES CARRIED IN STOCK



Pat'd and Patents Pending

This is a picture of the

"HALLOWELL" STEEL WORK-BENCH

Every part of it is of steel and therefore it stands the racket better than other benches.

But most important of all is its one-piece sheet steel top—because it never becomes oil-soaked, never cracks, never splinters; but on the contrary gets smoother and more serviceable with age.

"Hallowell" Steel Work-Benches are quite inexpensive—besides they can be picked up from stock, so there is no waiting.

Write for Bulletin No. 386.

Other "Hallowell" Lines of Steel: Bench Legs, Work Tables, Tool Stands, Drawers, Trucks.

STANDARD PRESSED STEEL CO.



BRANCH
28 N. Clinton St.
CHICAGO, ILL.

JENKINTOWN, PENNA.
BOX 518

BRANCH
944 Harper Ave.
DETROIT, MICH.

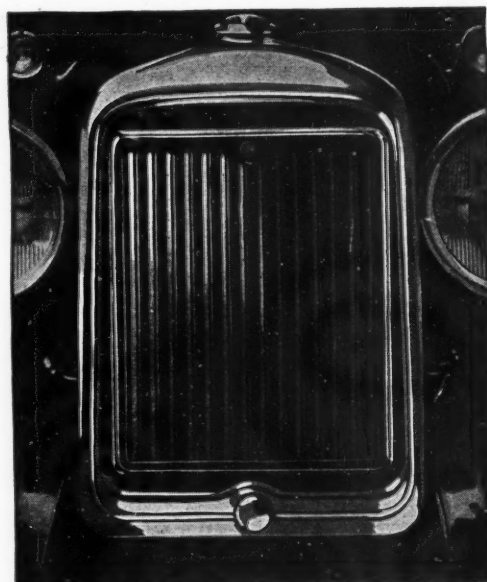
Sell Your Customers

Better Motor Performance
Greater Driving Comfort
Smart Radiator Appearance

by equipping their cars with the new

GLOBE VERTICAL BLADE Radiator Shutter

(Licensed by Pines Winterfront Co., under Patent No. 1,458,593)



SHOW the winter motorist how he can improve motor performance, add to his driving comfort and the appearance of his car . . . all at small cost . . . and you will be surprised how easy it will be to sell him the new **GLOBE Vertical Blade Radiator Shutter**. Result—greater profits for you and satisfied customers.

Thousands of motorists are now enjoying the convenience of the **GLOBE Vertical Blade Shutter**. The Vertical Blade construction

makes it the outstanding radiator shutter on the market. Hand controlled from the dash.



It's built to give service and priced to sell quickly. If you are not already enjoying a volume of extra profits on **GLOBE Shutters**, let us give you full particulars about the remarkable schedule of discounts as applied to this fast moving accessory.

**FORD-WHIPPET
 CHEVROLET**

\$6.50

GLOBE MACHINE & STAMPING CO.
 1225 W. 76th Street, Cleveland, Ohio

Gentlemen:

Please send us complete details regarding the new Globe Vertical Blade Radiator Shutter.

Name

Address

**ALL OTHER
 CARS**

\$11

Manufactured by

THE GLOBE MACHINE & STAMPING COMPANY
 1225 West 76th Street CLEVELAND, OHIO

MOTOR AGE

Vol. LIV

Reg. U. S. Pat. Off.
Established 1899

No. 14

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Reap this Rich Francisco Harvest

Years of ripe experience in successful heater
merchandising—

The *only* heaters that improve carburetion at
the same time that they heat and ventilate the
car—

Guaranteed to deliver heat in greater volume
than any other—

Built to fit *every* make and model of car—

Nationally recognized, liberally advertised

—these features and many others are back of
the dealer who specializes on

THE FRANCISCO AUTO HEATER

America's
Standard



PRICE
\$3.00 to
\$10.00

The harvest season is at hand. Be ready to
reap the profits FRANCISCO has sown for
you through the years. *Now* is the time to
complete your stock; to tie up with FRAN-
CISCO advertising; to start saying "FRAN-
CISCO" to your customers. When the
weather gets cold, they buy—and once you
sell them a FRANCISCO they'll keep on
having FRANCISCOS installed on every
new car they get.

Don't put it off. The weather waits for no
man. Check up today on stock; then tele-
phone your jobber. The FRANCISCO is
carried by the best jobbers everywhere.

THE FRANCISCO AUTO HEATER CO.
Cleveland Ave. at Essex Columbus, Ohio

Francisco Canadian Auto Heater Co.,
Hamilton, Ontario, Canada

Dept. 14

Send full dealer information about FRANCISCO Auto
Heaters.

Name.....

Address.....

You feel
safer *because*
you are safer
behind ~ ~

Duplate

GLASS cuts constitute more than half the personal injuries resulting from motor accidents—injuries which may leave lifelong scars.

DUPLATE is *Plate Glass* made shatter proof. It gives you the same unobstructed vision, the same clearness and lack of distortion, the same optical precision as regular plate glass—the difference being that DUPLATE eliminates the possibility of cuts from flying or jagged glass.

DUPLATE, in standard sizes for all makes of windshields and car windows, is ready for delivery to dealers.

Recommend replacements of windshields and window glass with DUPLATE—the Shatter-proof Glass. The change can be made in a few minutes at a cost to your customer that buys 10 times its value in peace of mind and safety.

PITTSBURGH SAFETY GLASS COMPANY
PITTSBURGH, PA.

*Distributed by warehouses of Pittsburgh Plate Glass Co.
located in all principal cities of the U. S.*

Dealers write for information and prices.

The
**SHATTERPROOF
GLASS**



Insurance merely
compensates . . .
Duplate prevents
injuries.



PRESIDENT EIGHT

Less than a year old...

*Outselling every other
Eight!*

THE greatest dealers and salesmen in existence couldn't carry a car to such heights of leadership--and in nine short months--unless the car, the price and the make were RIGHT!

Studebaker's President Eight, by indisputable state license figures, is outselling every other eight-cylinder car just as it out-performed ALL cars when it traveled 30,000 miles in 26,326 minutes.

This great car was introduced only last January. In July it swept past the entire field. August saw the lead increased.

The Studebaker franchise gives you not only The President Eight, selling from \$1685 to \$2485; but also The Commander at \$1435 to \$1665; The Dictator at \$1185 to \$1395; and The Erskine Six at \$835 to \$1045--four great lines of passenger cars--in addition to a full line of commercial cars.

Write or wire for the facts now, and line up with the leader!

Department 51

THE STUDEBAKER CORPORATION OF AMERICA, SOUTH BEND, INDIANA

STUDEBAKER

A Great Group of New Models

A Wide Range of Attractive Prices

A rich field for *Big Profits*

ONE of the biggest "why's" of Nash success—one of the richest profit sources for the Nash dealer—is the wide range of "400" offerings at so wide a range of "400" prices.

No matter what type of body a prospect needs, what colors and trim best suit his taste, what price best fits his income, the Nash "400" dealer *has it*.

Sixteen beautiful body styles, in three Series—the Advanced Six, Special Six, and Standard Six; and four wheel-base lengths—112¼, 116, 121 and 130 inches.

The Nash dealer has six different types of 4-door sedans to offer, ranging from the popular Standard Six Sedan at \$955 to the magnificent 7-passenger Advanced Six at \$1990.

There are three different coupes, one in each line, priced from \$885 to \$1775.

The Cabriolet model, that is so rapidly supplanting the roadster in public favor, is also offered in all three lines, at prices from \$955 to \$1660.

So is the 2-door sedan model—3 types—at \$885, \$1260 and \$1480 respectively.

And in addition, Nash builds a charming Victoria to sell at \$1345 f. o. b. factory.

Just think what you could do with a line like this—every model completely equipped before it leaves the factory with bumpers front and rear; four hydraulic shock absorbers, either Houdaille or Lovejoy; new type automatic windshield wipers; *fully equipped except a spare tire*.

And Twin Ignition . . . and Salon bodies . . . and a world of other important attractions . . . *at these low prices!*

NASH "400"

Leads the World

in Motor Car Value



For All Ball Bearing Service New Departures Are First Choice

NEW DEPARTURE Ball Bearings are rapidly becoming the standard ball bearing for all service work —for two reasons:

They are regular equipment in 8 of every 10 cars on the road today.

They are carried in stock in 800 towns and cities of the U. S. A. United Motors Service with its 23 direct branches and nearly 1,000 distributors are equipped and trained to give prompt, careful and expert bearings service.

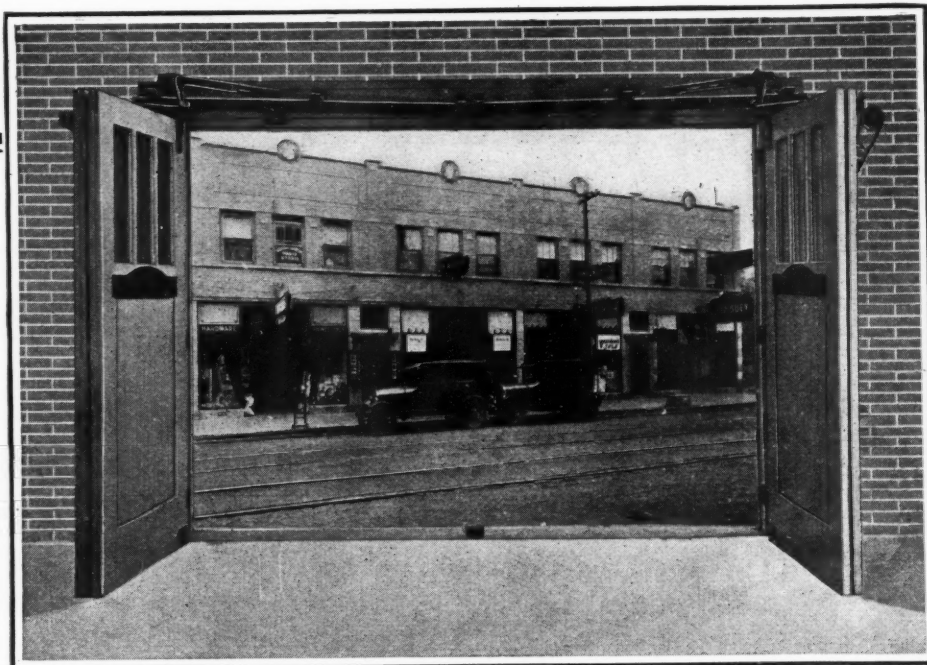
A request will bring the name of your nearest source of supply and copies of New Departure Service Station Manual and Service Catalog listing numbers and locations of all bearings in cars, trucks and tractors since 1917.

THE NEW DEPARTURE MFG. COMPANY
BRISTOL, CONNECTICUT
Chicago San Francisco Detroit

**NEW DEPARTURE
QUALITY
BALL BEARINGS**



**R-W
Aut-O-Dor
Electric Door
Operator**

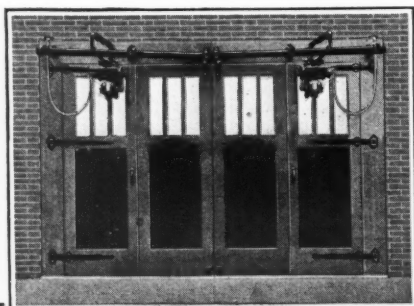


Push a button or pull a cord
Doors open and shut
instantly and automatically

Simple! Safe! Low first cost and practically no service or upkeep expense! . . . A typical R-W product, scientifically designed, sturdily made and thoroughly dependable.

All you do is push a button or pull a cord, several of them located in convenient parts of the garage. The R-W Aut-O-Dor Electric Door Operator works quietly and surely, without jolts or jars. Swinging or sliding-folding doors open wide or shut tight, instantly and automatically. You need never keep your patrons waiting. Saves their time and yours, too. Earns good will and increases your reputation for promptness and efficiency. The R-W Aut-O-Dor Electric Door Operator certainly pays for itself!

Closed position—Doors quite as rigid and tight as the wall itself, yet instantly responsive to remote control.



Write for further details

Richards-Wilcox Mfg. Co.
"A Hanger for any Door that Slides."

New York . . . **AURORA, ILLINOIS, U.S.A.** . . . Chicago
 Boston Philadelphia Cleveland Cincinnati Indianapolis St. Louis New Orleans Des Moines
 Minneapolis Kansas City Los Angeles San Francisco Omaha Seattle Detroit
 Montreal • RICHARDS-WILCOX CANADIAN CO., LTD., LONDON, ONT. • Winnipeg

MOTOR AGE

VOLUME LIV

Philadelphia, October 4, 1928

NUMBER 14

Last Quarter to Break All Records

Million Cars to Be Produced Next Three Months Is Belief

STOCKS LOW

DETROIT, Oct. 2—Automobile business throughout the United States and in the export fields is continuing at a rate that causes executives to forecast that output for the last quarter will be somewhere around 1,000,000 units. It is also believed that production for the third quarter which is now drawing to a close may total approximately 1,370,000 units, dependent of course on the figures for September, which gives every indication of being a banner month. Assuming that the above figures are somewhere near correct and adding them to the figures for the second quarter of 1,320,000 cars and the first quarter totaling 1,007,000 it is more than reasonable to assume that total output for 1928 will exceed by a comfortable margin the high record of all time set in 1926, when 4,503,000 cars were built.

While reports from Florida indicate untold damage from the recent hurricane, the results of the disaster will only be felt locally and will have little effect on the industry.

Paul Armstrong Dies

CHICAGO, Sept. 29—Paul Armstrong, former president of the village board of River Forest and head of Armstrong Bros. Tool Co. and the Armstrong-Blum Mfg. Co., died Sept. 20 at his home, 601 Franklin Avenue, River Forest.

Wallace to Philadelphia

ST. LOUIS, Oct. 2—W. G. Wallace, formerly vice-president of the Manhattan Moon Co., New York City, and later an official at the factory in St. Louis, has just been assigned to the eastern Pennsylvania territory as the company's district manager.

Wilber Joins Robert Bosch

DETROIT, Oct. 2—D. J. Wilber, for the past nine years sales engineer with the American Bosch organization, has associated himself with the Trade Sales Division of the Robert Bosch Magneto Co., Inc., as district representative for Michigan and Ontario with headquarters at Detroit.

Theft Prevention Device Operates by License Plates

A simple theft prevention device for automobiles is said to have been patented by a German engineer, who has perfected means of setting license plates in a vertical position until released by a special key, according to advices from Cologne to the Department of Commerce.

Carver With G. M.

DETROIT, Sept. 28—Walter L. Carver has joined the staff of the sales section of General Motors Corp. under B. G. Koether. Mr. Carver is well known throughout the industry. For four years he was Technical Field Editor of the Chilton Class Journal Co. at Detroit and resigned that position some months ago to assume an executive position with the Kelvinator Corp., from which he has just retired to join General Motors.

Sanders Again With Franklin

CHICAGO, Sept. 29—Frank H. Sanders, pioneer salesman, dealer and distributor, has returned to the Franklin Automobile Company as distributor in the Chicago territory. Mr. Sanders entered the service of the Franklin company in 1902 and from 1911 until 1922 was the distributor here. Showrooms have been established at 2000 Michigan Ave. where both wholesale and retail business will be handled. The new distributing firm will be known as the Franklin Motor Car Company, and Mr. Sanders is sole owner. His return to the row comes after six years of retirement.

Wyman Goes to Factory

MIDDLETOWN, CONN., Oct. 1—W. T. Palmer, manager of the Russell Manufacturing Co., Middletown, Conn., announces that H. B. Wyman, who has been service manager in the branch at 1442 South Michigan Avenue, Chicago, Ill., for the past seven years, has been transferred to the main office at Middletown, Conn., as general service manager. The creation of this new position was necessary because of the steadily increasing sale of Rusco products.

Epting Transferred

PHILADELPHIA, Sept. 29—The Wagner Electric Corporation announces the transfer of H. D. Epting to the Atlanta sales office.

Good Business is Sloan's Forecast

GM Executive Looks for Big Increase in Overseas Trade

GOES ABOARD

NEW YORK, Sept. 28—Sailing on the S.S. Olympic, Alfred P. Sloan, Jr., president of General Motors, intimated the possibility of a stock dividend to be declared at a directors' meeting in November. He pointed out that nothing had been determined or seriously discussed but that it would be reasonable to suppose that directors would follow the precedent of arranging the corporation's capital so that stock can be as widely held as possible.

Overseas shipments this year, Mr. Sloan expects, will be 290,000 cars and trucks. He looks for a rapid expansion of the foreign market. His complete statement the date of sailing follows:

With two of my associates I am leaving for a month's absence on an operating trip visiting the corporation's foreign subsidiaries. This is the routine trip which is customarily made by a group of General Motors executives at this time each year. There is no special significance to be attached to it.

General Motors operations abroad are each year increasing in importance, both in their contribution to our total volume of business as well as to our profit account. The American car is gaining rapidly in popular favor in all overseas markets and it is our hope and ambition to obtain a larger part of the market than we now enjoy. It is expected that the corporation's total shipments overseas this year will be 290,000 cars and trucks. This will involve a value to General Motors on a wholesale basis of approximately \$265,000,000. We are confident that this is only the beginning if we can measure up to the opportunity presented.

(Continued on page 16)

Sedley Brown Dies

DETROIT, Sept. 29—Sedley Brown, 72 years old, veteran stage director and writer and father of Sedley Brown, Jr., director of advertising at Dodge Brothers Corp., died suddenly in Los Angeles Sept. 19.

Merger of Trade Groups Ratified

Consolidation Fuses Strength of Two Old-Line Organizations

NEW YORK, Oct. 2—Ratification of the merger of the Motor and Accessory Manufacturers Association and the Automotive Equipment Association was voted unanimously at a special meeting of the former organization recently held at Hotel Astor. Inasmuch as A.E.A. members had previously approved the plan, the new organization formally entered its existence and the two older organizations automatically passed out of existence with this vote. The new organization has more than 800 members.

The consolidation fuses the strength and combines the activities of the 24-year old Motor and Accessory Manufacturers Association, comprised exclusively of manufacturers, and the Automotive Equipment Association, which was formed 13 years ago and whose members include automotive equipment wholesalers and manufacturers of products which the former distribute.

Ratification of the merger by the M. & A.M.A. marked the culmination of negotiations begun last May, when a special committee of the association and the executive committee of the A.E.A. held their first conversations on the subject. The A.E.A. membership voted in favor of the merger at the summer convention at Mackinac Island in June, giving the executive committee power to proceed. On the M. & A.M.A. side of the merger affairs were handled by the board of directors and the special committee, with action of the membership as the final step in the proceedings.

(Continued on page 13)

Notables to Meet

NEW YORK, Sept. 29—Henry Ford, Orville Wright, Glen Curtiss and Harvey S. Firestone are among the guests of honor who have accepted invitations to the concluding dinner of the Conference of Major Industries, to be held at Columbia University Oct. 24. Other guests include Thomas Edison, Charles M. Schwab and George Eastman.

Decker Goes South

NEW YORK, Oct. 2—F. H. Decker, assistant production manager of General Motors Argentina, who has been on a trip to the home office and General Motors factories, sailed for Buenos Aires Sept. 29 on S/S Munargo to resume his duties in South America.

Dean Representing Marmon

DETROIT, Sept. 29—Ray Dean has been appointed by the Marmon Detroit company as their representative for Marmon motor cars in Lansing.

Americana



C. W. Burst

THE new President of the Moon Motor Car Company was a mechanic in the Moon Motor Car Company's plant scarcely sixteen years ago. Through rapid advances, he has passed, successively, through the various official positions of general foreman, general superintendent, purchasing agent, vice-president, and now is president. This, we venture to say, could only have happened in America.

Kirtley With Raymond

DETROIT, Sept. 29—John C. Kirtley, formerly with the sales organization of the Standard Chevrolet Sales, local distributors for Chevrolet products, has been appointed sales manager of the Raymond Chevrolet Sales.

Rickenbacker Speaks

DETROIT, Sept. 29—Capt. E. V. "Eddie" Rickenbacker, assistant sales manager of the Cadillac Motor Car Co., addressed members of all luncheon clubs of Lansing last Thursday, on "Travel on Air, Water and Land."

Willet Inspecting

DETROIT, Sept. 28—W. R. Willett, assistant to W. C. Durant, arrived in Lansing Saturday on a trip of inspection to the local factory of Durant Motors. He will view construction work on the new \$250,000 power house now being built at the local plant and inspect the installation of machinery in the \$750,000 addition to the plant, which has just been completed.

New Webb Branch

ASHEVILLE, N. C., Sept. 28—The Webb Motor Co., Buick distributor, is opening a branch establishment in West Asheville. Walker Thomasson will be in charge.

Radio Set Stutz Newest Offering

Cars to be Equipped at Option of Purchaser. Outfit is Concealed

INDIANAPOLIS, Sept. 29—All Stutz cars at the option of the purchaser will be equipped with a six-tube radio set, it was announced to day at the plant of the Stutz Motor Car Co. of America, Inc. All models soon will be available with the new equipment but deliveries are being made on only the five-passenger sedans and broughams.

The set adopted has been undergoing tests in Stutz factories for more than two years, and special shielding has been developed so that neither the operation of the generator nor the distributor affects the reception.

The set is built into the instrument board and is entirely hidden except for the dials and controls grouped compactly on the instrument panel. A miniature loud speaker is located on the top of the windshield, while the antenna is concealed in the top. The set operates from the car battery.

New Nash Quarters

BALTIMORE, Sept. 29—The Wilson-Nash Motors Co., Baltimore, has opened its new building at 220 to 250 West Twenty-ninth Street. The structure contains 92,000 sq. ft. of floor space. All the departments are housed in the one building.

Phillips to Frisco

CLEVELAND, Oct. 2—E. J. Phillips who has been selling Van Dorn products in Detroit, has gone to San Francisco to take over that territory for the Van Dorn company. His place in Michigan will be filled by his brother, George Phillips.

Spaulding Replaces Beggs

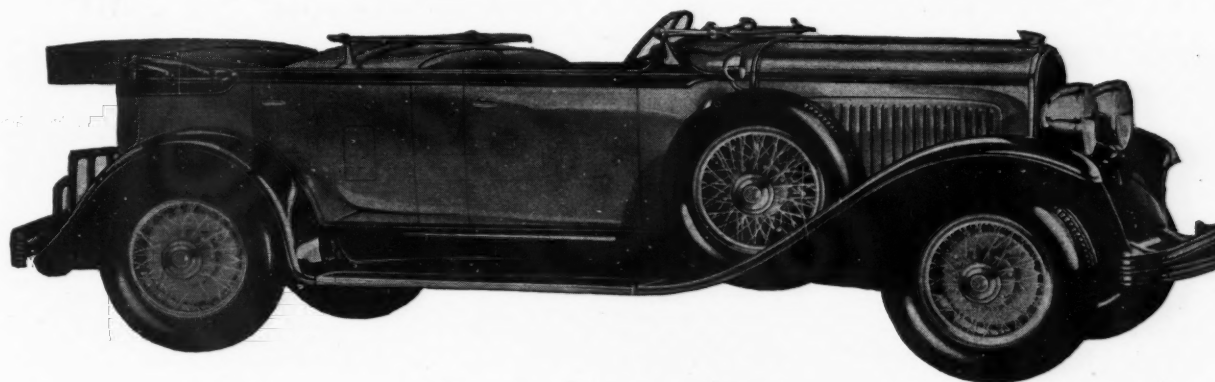
CLEVELAND, Oct. 2—J. F. Spaulding has been transferred to the Baltimore territory to fill the vacancy resulting from the transfer of Jack Beggs from Baltimore to the headquarters office in Cleveland.

Urquart to India

NEW YORK, Oct. 2—G. P. Urquart and family sailed Sept. 29 on S/S Cleveland for Berlin where Mr. Urquart will spend several months at General Motors G.m.b.H. before proceeding to Bombay where he will be commercial body superintendent of General Motors India.

Anderson to Copenhagen

NEW YORK, Oct. 1—Peter Andersen, assistant sales manager of General Motors International, sailed Sept. 29 on S/S United States for Copenhagen. Mr. Andersen had been in America several months visiting the home office and General Motors factories.



Chrysler Adds a Phaeton

HERE'S an important addition to the Chrysler "75" series, the new five-passenger phaeton. Typical Chrysler design is seen in the long, straight lines, the treatment of the rear cockpit and the narrow radiator shell

Ammco Model Changes

CHICAGO, Sept. 29—Automotive Maintenance Machinery Co., manufacturers of cylinder reconditioning tools, has changed the model designations of the Rigid Cylinder Grinder. The Model N rigid cylinder grinder with screw driver adjustment has been changed to Model D and the Model X cylinder grinder with external adjustment has been changed to Model E.

Wins Beauty Pageant

GRAND RAPIDS, Oct. 2—Mrs. Dorothy Taylor, driving an Elcar de luxe sedan, was awarded first prize in the Vodvil Carnival and beauty pageant recently staged by Lalakoum Grotto, in Grand Rapids, Michigan.

Salesman to Florida

CHICAGO, Sept. 29—Salesmen of the Hudson Motor Car Company of Illinois are racing neck and neck for a winter vacation in Florida. The salesman who shows the best record between September 1 and December 1 will be rewarded with a trip to Florida with all expenses paid not only for himself, but for Mrs. Salesman as well, Walter Evans, general manager, has announced.

Profits From the Air

NEW YORK, Sept. 28—The United States Air Transport, Inc., reports gross earnings for the quarter ended Aug. 31 as \$34,655. This income was derived from sightseeing and student instruction at the Washington airport. Net income after maintenance and operating charges totaled \$16,361.

Williams Distributes Durant

HARTFORD, CONN., Sept. 29—F. W. Williams, Inc., 277 Connecticut Boulevard, East Hartford, Conn., state distributor of the Durant and Locomobile, has just been assigned the Rhode Island territory by the factory headquarters.

F. Williams, president of the company, announces the following Rhode Island appointments: Providence, C.

W. Spink, dealer, and the Lawton Garage as associate; Newport, Morton Park Garage; West Warwick, the Warwick Durant Sales Co., and Woonsocket, the Union Garage. Williams reports that a big selling organization will be built up in Rhode Island.

Packard Men Meet

DETROIT, Sept. 28—Service managers representing 330 Packard branch distributors and dealers throughout the United States and Canada were in Detroit for a three-day service meeting September 19, 20 and 21. Sessions were held at the factory.

Jordan Stock

NEW YORK, Sept. 29—Jordan Motor Car Co. has offered to its stockholders of record Sept. 25 rights to subscribe to 74,000 shares of unissued preferred stock at \$8 a share. Proceeds of this issue will be used for working capital of the company.

Averill Has Chevrolet

HARTFORD, CONN., Sept. 29—H. L. Averill has organized the Averill Chevrolet Co. here and taken sales and service quarters at 339-341 Connecticut Boulevard.

Champion Sparkers Again to Be Heard Thursday Evenings

THE Champion Sparkers, a popular radio feature for the past three winters, will be heard each Thursday evening over the Blue Network of the National Broadcasting Co. at 8.30 to 9.00 o'clock, Eastern Standard Time. The Champion Sparkers are sponsored by the Champion Spark Plug Co. of Toledo, Ohio, and Windsor, Canada.

Williams Franklin V.P.

SYRACUSE, N. Y., Oct. 1—Appointment of John E. Williams to be vice-president in charge of sales for the Franklin Automobile Company was announced here this week by H. H. Franklin, president. For the past year and a half Mr. Williams has been merchandising and advertising counsel for the Franklin Automobile Company, and has an intimate knowledge of its organization.

Before joining Franklin Mr. Williams was vice-president of the United States Advertising Corporation of Toledo, Ohio.

Hayes Business Good

GRAND RAPIDS, Sept. 29—With 2000 men working full time in its Grand Rapids plant and 500 men working overtime in the Ionia plant, the Hayes Body Corp. is enjoying the greatest prosperity in its history, says Hal H. Smith, vice-president.

More Road Service Members

ST. LOUIS, Sept. 29—The "sideline" activities of the St. Louis Auto Dealers' Association are prospering. In the month since it was inaugurated 2400 members have been obtained for the Emergency Road Service Bureau operated by the dealers.

"Red Bug" Plans

NEWARK, N. J., Sept. 29—Plans for the formation of a subsidiary company, which will be engaged in the amusement field, by Automotive Standards, Inc., manufacturers of the "Red Bug," a small electrically and gasoline-driven utility and passenger automobile, are nearing completion, it was learned here. The new company will be formed to make use of the "Red Bug" in amusement parks throughout the country.

Demand Increases

AUBURN, Oct. 2—Increase in demand for Auburn's 88 model has necessitated right of way being given this model in production, says Roy Faulker, vice-president in charge of sales.

The Automotive Calendar

SHOWS

Automotive Equipment Association, Coliseum, Chicago, Oct. 22-27.

Baltimore, 5th Regiment Armory, Jan. 19-26.

Boston, Mechanics Bldg., March 2-9.

*Chicago, National, Coliseum, Jan. 26-Feb. 2.

Cincinnati, Music Hall, Jan. 13-19.

Cleveland, Public Auditorium, Jan. 26-Feb. 2.

Dallas, Texas, Oct. 6-21.

Denver, Colo., Auditorium, Feb. 11-16.

Detroit, Convention Hall, Jan. 19-26.

Eastern States Exposition, Springfield, Mass., Sept. 16-22.

Kansas City, Mo., American Royal Bldg., Feb. 9-16.

Los Angeles, Washington Park, March 2-10.

Louisville, Ky., Armory, Jan. 21-26.

Milwaukee, Wis., Auditorium, Jan. 12-19.

National Standard Parts Association, Cleveland Auditorium, Oct. 29-Nov. 3.

Newark, N. J., Jan. 12-19.

*New York, National, Grand Central Palace, Jan. 5-12.

Peoria, Ill., Feb. 5-9.

Philadelphia, Commercial Museum, Jan. 12-19.

Salon, Automobile Salon, Inc., Hotel Drake, Chicago, Jan. 26-Feb. 2.

Salon, Los Angeles Motor Car Dealers Assn., Biltmore Hotel, Oct. 17-20.

Salon, Automobile Salon, Inc., Hotel Biltmore, Los Angeles, Feb. 9-16.

Salon, Automobile Salon, Inc., Hotel Commodore, New York, Dec. 2-8.

Salon, Automobile Salon, Inc., Palace Hotel, San Francisco, Feb. 23-March 2.

San Francisco, Civic Auditorium, Jan. 26-Feb. 4.

Springfield, Mass., Municipal

Auditorium, Feb. 25-March 2.

St. Louis, City Market Bldg., Feb. 4-9.

Syracuse, Feb. 4-9.

Ottawa, Canada, Feb. 4-9.

Pennsylvania Automotive Association, Allentown, Pa., Oct. 15-16.

CONVENTIONS

Automotive Equipment Association, Coliseum, Chicago, Oct. 22-27.

National Standard Parts Association, Hollenden Hotel, Cleveland, Oct. 29-Nov. 3.

S.A.E.

Detroit, Book-Cadillac, Annual Meeting, Jan. 15-18.

Newark, Robert Treat Hotel, Transportation Meeting, Oct. 17-19.

New York, Annual Dinner, Hotel Astor, Jan. 10.

RACES

Salem Oct. 12

*Will have special shop equipment exhibit.

Oct. 10—Marketing Annual for 1929—Motor World Wholesale.
Nov. 17—Production and Factory Equipment Issue—Automotive Industries.

Isotta Moves

NEW YORK, Sept. 29—Isotta Motors, Inc., has moved from 785 Fifth Ave. to larger quarters at 119 West Fifty-seventh St., where they will present several new Isotta Fraschini models of recent importation.

More Crude Oil Produced

NEW YORK, Sept. 29—Daily average crude oil production in the United States for the week ended September 15, 1928, according to the American Petroleum Institute, was 2,504,900 barrels as compared with 2,494,200 barrels for the preceding week, an increase of 10,700 barrels.

Aids Porto Ricans

NEW YORK, Sept. 29—General Motors Export Co., through W. D. Sullivan, managing director, cabled J. C. Hitchman, general manager, Insular Motors, San Juan, Porto Rico, authority to contribute \$5000 to the Porto Rican government for relief work. The Porto Rican personnel of General Motors has been instructed to devoted itself to relief activities.

Radio Record Reported

NEW YORK, Sept. 29—General Motors Family Party broadcast over the radio on July 2 was heard in Perth, Western Australia, according to a letter received in the New York office of the export company from W. D. Hobson, General Motors branch manager in Perth.

Motorists Get Speed in Italy

Paved roads connecting all principal Italian cities, and without road-level intersections, is the highway future assured motorists in Italy. This system of "autostrada," as they are called, is

not a dream to be consummated just before the arrival of the millennium, for a good portion has already been built and the other links are under construction.

Durants Rushed West

ELIZABETH, Oct. 2—With the announcement of the new models of the Durant Four and the Durant Six Series "60," Durant Motors had to solve the problem of getting these new cars in the hands of their dealers in the Mid-West so that the showing of new models would be made simultaneously all over the United States. This movement of new cars commenced when a solid trainload of seventy freight cars filled with new Durants left the Elizabeth factory of Durant Motors at Elizabeth, N. J., for Chicago.

Big Automobile Contract

SEATTLE, WASH., Sept. 29—August Johnson, president of the Transport Motor Co., of Seattle, Spokane and Yakima, and Colin Campbell, vice-president for Willys-Overland, in charge of sales, placed their signatures to what is believed to be the largest contract for the sale of automobiles ever signed in this state. The contract calls for selling of 10,000 Willys-Knight and Whippet cars during 1929, having a total retail value of \$10,500,000.

New License Plates

OLYMPIA, WASH., Sept. 29—Although the motor vehicle year does not begin until December, Charles R. Maybury, director of licenses, has received first delivery of 1929 license plates. The initial carloads of 129,450 and three more carloads will complete the order, or a total of 450,000 plates.

Nash in New Building

CHICAGO, Sept. 28—Removal of the Chicago Nash Company to its new \$1,000,000 building at 2360 Prairie Ave. is announced this week by H. T. Hollingshead, president. The new building will house retail sales, showroom and service department. The row salesroom at 2501 Michigan Ave. will be retained.

Curtiss Aerocar Organized

ATLANTA, Sept. 28—Glenn H. Curtiss, Garden City, N. Y., H. Sayre, Opa Locka, Fla., and others have recently organized and incorporated the Curtiss Aerocar Co. of Florida at Opa Locka, Fla.

Glenny Buick Builds

NEW ORLEANS, Oct. 1—The Glenny Buick Co., Inc., Buick distributors in this district, awarded contracts recently for a new sales and service building to be occupied by the company before the end of the year.

Oldsmobile Dealer Builds

BROWNSVILLE, TEX., Sept. 27—The Valley Oldsmobile Co., distributors of the Oldsmobile line in this section of the southwestern territory, plan erection of a new sales and service building, an investment of over \$50,000 being planned, including equipment.

Bus and Car Compared

A loaded truck or bus traveling at 20 miles an hour employs in proportion approximately as much power as does an automobile traveling 50 or 60 miles an hour. This is, of course, due to the weight of the vehicle, according to an engineering news bulletin issued by the AC Spark Plug Co., which gives some interesting information concerning trucks and buses.

Merger of Trade Groups Ratified

M. & A.M.A.—A.E.A. to be Headed by Heminway; Ruark Assistant

(Continued from page 10)

A special committee of the M. & A.M.A. to work with the A.E.A. in the organization of the new association is comprised of Messrs. McComb, Morris, and C. H. Burr, SKF Industries.

M. L. Heminway, general manager of the M. & A.M.A. for approximately ten years, will be managing director of the new association. B. W. Ruark, commissioner of the A.E.A., will be assisting managing director.

The new association will continue features of the Greater Market Development work of the A.E.A. and the Sales Development work of the M. & A.M.A. adaptable to the merged organization. This work will include the annual wholesale trade show of the A.E.A. and participation in the national automobile shows at New York and Chicago held under the auspices of the National Automobile Chamber of Commerce with the cooperation of the M. & A.M.A. The credit service of the M. & A.M.A., traffic service of the A.E.A., participation in the Motor Vehicle Conference Committee, of which the M. & A.M.A. was one of the founders, co-operation with other associations in the automotive industry and other industries and legislative work will also be continued. New activities will be developed from time to time to provide the greatest possible service for manufacturer and wholesaler members and to promote the interests of the industry.

The meeting was presided over by J. M. McComb, president of the association, and vice-president of the Crucible Steel Co. of America. Mr. McComb was chairman of the special committee, working with the following associates: M. A. Moynihan, Gemmer Mfg. Co.; W. B. Ericson, Biflex Products Co.; W. T. Morris, American Chain Co.; L. A. Safford, McQuay-Norris Mfg. Co.; M. L. Heminway, general manager of the M. & A.M.A.; George L. Brunner, Brunner Mfg. Co., and W. L. Albaugh, Thompson Products, Inc., also took part in some of the discussions. The A.E.A. committee which conducted the merger negotiations was headed by A. C. Storz, Storz-Western Auto Supply Co., Omaha, Neb.; with George B. Shearer of Gaul, Derr & Shearer Co., Philadelphia, and Elton R. Seager, Pennsylvania Rubber & Supply Co., Cleveland, as his jobber associates. Manufacturer members were W. C. Hecker, Curtis Pneumatic Machinery Co., vice-president of the A.E.A., and W. S. Isherwood, AC Spark Plug Co.

Van Norman Builds

SPRINGFIELD, MASS., Oct. 1—Van Norman Machine Tool Co. is erecting



They Talked With Hoover

DELEGATION of American motorists and road builders at Herbert Hoover's personal headquarters, Washington, D. C. Left to right—front row: Harvey L. Cobb, general counsel, American Motorists Ass'n (MOTOR AGE's Washington correspondent); Charles M. Upham, director general, American Road Builders Ass'n; J. Borton Weeks, president, A.M.A.; James J. Whelan, field director, Keystone Automobile Club. Back row: Thomas J. Keefe, general manager, A.M.A.; G. Adams Howard, vice-president, A.M.A.

a two-and-a-half stories addition to its plant at a cost of \$20,000. This will take care of an increased business in producing machine tools, and special machines for grinding automobile valves, pistons and ball bearings for various uses.

Reeves to Speak

NEW YORK, Sept. 28—Alfred Reeves, general manager of the National Automobile Chamber of Commerce, will speak on Oct. 15 before the Motor Vehicle Dealers Association at Allentown, Pa.

Wilcox-Rich Consolidation

DETROIT, Oct. 1—Consolidation of the Rich Products Corp. and the Wilcox Products Corp., to go into effect today was approved Sept. 18 in a meeting of stockholders.

Detroit Moon Distributor

DETROIT, Oct. 2—A. L. Kauffman and G. M. Brooks, president and secretary, respectively, of the Acme Truck Sales & Service Co., have formed a new company to handle the new Moon-Aerotype in Detroit and surrounding territory.

Graham-Paige Wins

DETROIT, Sept. 29—Switzerland's first international elegance competition, held recently at Lucerne, brought marked honor to the Graham-Paige, which was the only American car to win a prize.

Thirty leading makes of European and American automobiles were paraded before the board of judges. First and second prizes went to custom-built European cars, an Isotta-Fraschini (Italian) and a Martigny (Swiss). An eight-cylinder Graham-Paige five-passenger sedan was third, winning the highest award for cars carrying standard production bodies.

In a similar contest at Karlsbad, Czechoslovakia, a Graham-Paige took the prize in its class, defeating such European cars as the Skoda, Horch, Isotta-Fraschini, and Tatra.

Schultz Selling Durant

OLYMPIA, WASH., Sept. 29—Capital Motors Corp., with Henry Schultz, president, has been organized here to handle the Durant line. Mr. Schultz has the distinction of being the oldest automobile dealer in this section.

Last Quarter to Break All Records

Look for Million Cars to be Produced During Next Three Months

(Continued from page 9)

the bearing on the general business situation, say automobile company executives. They point out that Florida, which has been hard-hit in a business way for the past three years, has not been considered a good market for automobiles, hence the disaster will not reflect nearly as much as if the hurricane had struck one of the more prosperous sections of the United States. Business is reported as generally good throughout the rest of the country with few bad spots.

Stocks of new cars in dealers hands or in transit still remain at a minimum with a majority of companies and a number of makers finding themselves in the position where they have many more orders on hand than the factories can immediately take care of. Reports coming in from the field indicate that new car sales are still maintaining at a level well in excess of a year ago. Besides the above condition which seems to be quite general throughout the industry, it must also be considered that Ford is becoming more and more a production factor, hence a new record for October, November and December seems to be on the books.

With the unprecedented sale of new cars, this year, it stands to reason that dealers have taken in many more used cars than in previous years, but reports also indicate that there has been a good market for this class of vehicles with a result that stocks of used vehicles have been kept in proportion to new car movements. There are probably two outstanding factors which have mitigated to the benefit of the used car situation. The fact that Ford has been delayed so long in getting up production in the low-priced market has turned many of his prospective customers to used vehicles. Again the high employment rate has created a good demand for the cheap class of used cars by factory workers.

Budd Wheel Entertains

PHILADELPHIA, Sept. 28—Budd Wheel Company was host recently to the semi-annual credit meeting of the wheel and rim manufacturers. Representatives were present from Budd, Firestone, Kelsey-Hayes, Motor Wheel, Cleveland Welding and United Motor Service.

The meeting was held at the Detroit Yacht Club, followed by a luncheon, after which the entire group was taken for a sail down the Detroit river.

Murray Corp. Elects

NEW YORK, Oct. 1—The Murray Corporation of America, at its annual

meeting held in New York, elected new officials and eight new directors. Among the new officers is C. W. Avery, former assistant to the president, who becomes president, replacing William R. Wilson, whose resignation was accepted at this meeting. H. O. Barker becomes chairman of the board, A. P. Dowell becomes vice-president in charge of manufacturing and C. H. Widman becomes vice-president in charge of sales.

Newly elected directors include C. W. Avery, A. P. Dowell, C. H. Widman, H. O. Barker, S. P. Curtis, D. W. Gurnett, J. C. Marckley and C. C. Gibson. These, together with Mr. C. Higbie, E. A. Potter and K. L. Ames, constitute the present board of directors.

Forms Sales Department

SPRINGFIELD, MASS., Sept. 29—The Van Norman Machine Tool Company of Springfield, Massachusetts, as of October 1st, is withdrawing from a selling agreement with the Van Dorn Electric Tool Company and is establishing its own selling organization.

The Van Norman line will consist of well-known Van Norman Valve Tools and Piston Grinders, plus several new items, and will also include distribution to the Automotive Trade of Stanley Electric Tools and the Stanley-Atha line of small tools, such as chisels, hammers, body repair tools, and other items manufactured by the Stanley Rule & Level Plant of New Britain, Connecticut.

A policy of restricted distribution through jobbers only will be followed. A complete sales and service organization is already in the field.

The marketing of these tools will be under the direct supervision of Leo F. Hunderup as sales manager.

\$100.00 Reward

FOR the arrest and conviction of fraudulent subscription men taking orders for the following Chilton Class Journal publications: *MOTOR AGE*, *Automobile Trade Journal*, *Motor World Wholesale*, *Commercial Car Journal*, *Operation & Maintenance* and *Automotive Industries*.

Recently a man about five feet eight inches tall, weighing approximately 175 lbs., a good talker and a good dresser, has been victimizing the trade in Colorado, Texas, Oklahoma and Kansas. His automobile bears license number Texas 890-628. He signs his name M. L. Collins, T. O. Collins and "Hallihan." He usually uses a brown receipt with the words, "Subscriber's Official Receipt," across the top.

If he should call on you, complete the purchase transaction with him; then turn him over to the police and wire the Chilton Class Journal Co., 56th and Chestnut Streets, Philadelphia, Pa.

Hupp Six Winner Milan-Munich Run

Has Flawless Record for Five-Day Drive Over Mountain Course

DETROIT, Oct. 2—Detailed accounts of a sensational victory scored by a Hupmobile Century Six stock car in the five-day International Alpine Test over the steepest grades of the Alps in Italy, Switzerland and Austria, are contained in official advices and European newspapers just received by the Hupp Motor Car Corporation at Detroit.

The International Alpine Test is considered in Europe the most difficult automobile durability contest of the present day. It is a post-war revival of the old international Alpine drive started in 1898 as a bicycle and automobile race and for years, until interrupted by the World War, was the outstanding event of southern Europe's motoring world.

The course, from Milan, Italy, to Munich, Bavaria, is 1180 miles and traverses the highest mountain tract in Europe. It crosses such famous passes as the Simplon, with an altitude of 6560 feet, the Furka, 7701 feet, the St. Gothard, 7216 feet, and the St. Ilfser, 8053 feet. Heinz Hinterleitner, who drove the winning Hupp, received the International Alpine Gold Cup as a trophy for his feat.

"The drive took us over the most difficult mountain passes with many highly dangerous curves," said Hinterleitner in his report of the race, "but we were always under the maximum time allowed by the conditions of the test and always made the best elapsed time of our class, although many of the competing cars were more powerful."

Better Streets in New Cities

Younger cities, perhaps governed less by habit, are making better provisions for modern traffic than older centers of population.

Los Angeles, a member of the younger generation of cities, last year established a new record in street building by completing and accepting 234 miles of first class pavements capable of economically carrying the tremendous burden that daily passes over the ordinary city street.

Balloon Output Gains

NEW YORK, Sept. 24—Production and shipment of balloon tires during July continued at a pace above July of last year, with production sufficiently far ahead so that inventories at the end of July exceed those of a year ago. Production of high pressure cord tires, on the other hand, both casings and tubes, was much lower in July of this year than a year ago so that inventories are below inventories of this period last year, according to monthly statistics of the Rubber Association.



Conquerors of Land and Air

COL. ARTHUR C. GOEBEL, California's ace of the air lanes, has purchased a Nash "400" Series Advanced Six sedan. The picture shows Col. Goebel (left, center) and Harry J. Tucker just before they left for the recent New York to Los Angeles race

Chevrolet Salesmen Meet

COLUMBUS, OHIO, Oct. 2—George R. Bowder, district sales manager of the Chevrolet Motor Co., with headquarters at Cincinnati, was the principal speaker at a get-together meeting and breakfast for all Chevrolet salesmen in Columbus and suburbs, at the Deshler-Wallick Hotel, Sept. 13. The salesmen were the guests of the dealers and distributors in Columbus.

New Chevrolet Distributors

ATLANTA, Sept. 29—The Chevrolet Motor Co. announces recent appointment of two distributors, both new firms, University Chevrolet Co., Tuscaloosa, Ala., and the Vidalia Chevrolet Co., Vidalia, Ga.

New Chevrolet Building

SAN ANTONIO, Sept. 29—Milam Chevrolet Co., Chevrolet distributors, recently awarded contracts for erection of a new sales and service building here, cost of which is expected to be approximately \$100,000.

Japan Motorizing

WASHINGTON, Oct. 2—The rapid motorization of Japan is reflected in registration figures for 1927 showing a total of 54,632 vehicles—34,754 passenger cars and 19,878 trucks and buses—the Department of Commerce is advised by its office at Tokyo. This rep-

resents approximately a 28 per cent increase over 1926, a 165 per cent increase over 1923 and a 350 per cent increase over 1921.

The United States supplied approximately 81 per cent of a total of 3895 fully assembled passenger cars and trucks imported into Japan in 1927.

Durant Driveaway

ELIZABETH, N. J., Sept. 29—The largest driveaway of Durant cars this year was staged at the Durant plant at Elizabeth, N. J., on Sept. 20. Over 150 cars were driven out on this one day by Durant dealers from New Jersey, New York and Connecticut after a dealer meeting at the plant, when new models of the Durant Four and Durant Six Series "60" were viewed by these dealers for the first time.

Ray Cleary With Nash

MILWAUKEE, Sept. 29—Ray Cleary, for 20 years associated with the Buick Motor Co. in various capacities, has resigned to accept the position of wholesale manager of Nash Sales, Inc., Milwaukee, distributor of the Nash in Wisconsin and upper Michigan. Mr. Cleary became Buick dealer at Antigo, Wis., in 1907 and later was made district manager, director of retail sales for the Chicago and Milwaukee branches, and supervisor of sales and service.

Exporting Gas Pumps

SPRINGFIELD, MASS., Oct. 2—Gilbert & Barker Mfg. Co. reports a marked increase of foreign orders for gasoline pumps. Stanley C. Hope, vice-president, has made a three months' tour of Europe and sees improved export business due to better roads, especially in France.

Hambly Boosts Highway

INDIANAPOLIS, Sept. 28—The proposed Pan-American highway connecting Canada, the United States and South America is more necessary for present-day social and economic needs than was the transcontinental railroad in the early days of this country, according to Frank L. Hambly, export manager of the Marmon Motor Car Co., who returned recently from an extended trip to Central and South America.

Forest Home Co. Sold

MILWAUKEE, Sept. 28—One of the largest transactions involving retail automobile sales that has ever been recorded in Milwaukee is the purchase by the King-Braeger Co., 718 National Avenue, Chevrolet dealer, of the Forest Home Chevrolet Co., 875 Forest Home Avenue. The consideration amounts to \$110,000 for the real estate and buildings of the Forest Home company, and \$150,000 for its stock, equipment, franchise and good will.

Good Business is Sloan's Forecast

Is Optimistic on Future.
Looks for Big Export
Gain

(Continued from page 9)

Conditions in general with General Motors at this time are satisfactory. At no time have I felt more confidence in the future security of the corporation's position from every standpoint. Earnings are proceeding at an excellent rate. For the first nine months of this year they will exceed those of the entire year 1927, therefore, it appears reasonable to suppose that we should report this year the largest earnings in our history.

Stocks of General Motors cars in the field are relatively the smallest that they have been at this season for many years past. As a matter of fact, in some lines there is a shortage which is handicapping us. Our new series of cars recently announced—Cadillac, LaSalle and Buick—are taxing the capacities of their respective plants. The favorable reception that Buick has received has forced up production to over 1300 cars a day—a new record. Cadillac and LaSalle have been especially well received, particularly the new transmission and braking system. New records for production are being established by the Cadillac plant, yet demand is in excess of supply. A new Oakland model will be announced in about three weeks, which I feel sure will be well received. The trend may be judged by the fact that retail sales of General Motors cars for the first eight months are 26 per cent ahead of the corresponding period last year. As a matter of fact, retail sales of all important manufacturers in the automotive industry have continued through the summer at an exceptionally good rate. In view of the above it is very evident that there is reflected a general state of prosperity for industry in general, especially in view of the fact that practically all sections of the country are contributing to the general result.

(Continued on page 17)

Bliss & Co. Dividend

E. W. Bliss & Co. has declared regular quarterly dividends as follows: 25 cents on common, \$1 on first preferred, 87½ cents on second preferred and 75 cents on second preferred Class B, all payable Oct. 1 to holders of record Sept. 18.

Saf-T-Cab Orders Auburns

CLEVELAND, OHIO, Sept. 29—One of the largest individual orders ever received by an automobile company has been placed with Auburn by the Saf-T-Cab Corporation of Cleveland for Saf-T-Cabs.

G. M. of P.-A.



A. J. Chanter

MR. CHANTER, newly made first vice-president and general manager of Pierce-Arrow Motor Car Co., has been associated with transportation of some type since his entrance in business. In 1912 he became a road tester for Studebaker and since then has been continuously in Studebaker service in various departments.

Vice-President



B. H. Warner

HE has been appointed vice-president in charge of manufacturing of the Pierce-Arrow Motor Car Co., and has been associated with Studebaker practically throughout his career.

Collings Represents Leco

CHICAGO, Sept. 29—C. J. Collings of Cleveland, former district manager in the East for the Biflex Bumper Co., of Waukegan, Ill., and earlier with the Pennsylvania Piston Ring Co. of Cleveland, has been appointed district manager in the Eastern States for the Lubricating Equipment Company of Chicago, manufacturer of the "Leco Automaton" top cylinder lubricator.

Ball Game Boosts Sale of Cars

Overland-Knight Co. of
Buffalo Rewarding Two
Salesmen

BUFFALO, Oct. 1—Allen T. McKay, general manager of the Overland-Knight Co., 1253 Main Street, announces that two of his salesmen are going to the World Series at the expense of the company. In addition to paying the regular bonus which has been so popular with the men, and which has been responsible for their setting a record of a car sale every two hours in the Main Street store for the past 90 days, Mr. McKay has offered a free trip to the World's Series to the two men who sell the greatest number of Willys-Knights and the greatest number of Whippets respectively during August and September. Each man on the sales forces represents a team in either the National or American League. Fred R. Boyce is sales manager and will personally direct the activities of the Willys-Knight boys. W. J. Chown, assistant sales manager, will assist the Whippet boys. Each salesman will be given credit for varying numbers of points representing calls, interviews, sales, etc. His friends will be the members of his team and furnish him with prospects. The schedule changes every week. In other words each team plays a different team each successive week. As in the big leagues, runs win the games. A sale is a run. The men and the teams they represent are as follows:

National League—Boston, Mattingly; Brooklyn, Hey; Chicago, Buck; Cincinnati, Mahoney; New York, Williamson; St. Louis, Kinney; Pittsburgh, Gardner.

American League—Chicago, Brown; Cleveland, Maul; Detroit, Ebert; New York, Weber; Philadelphia, Gomez; St. Louis, Gueth; Washington, Fredrick. Each salesman is anxious to have all his friends help him by giving him prospects that he may have a free trip to the World Series.

With the used car the Overland-Knight has a crew of about 20 salesmen.

Williams Visits G. M.

NEW YORK, Oct. 1—George Williams, supply manager of General Motors South Africa, arrived in New York Sept. 29 on S/S New Amsterdam for a short visit to the home office and General Motors factories.

Baltimore Peerless Agency

BALTIMORE, Sept. 29—The South East Motor Corp. has been organized to take over the distributorship of the Peerless in Baltimore and vicinity. Joe R. Cook is local manager.

Pavements Save Missouri's Cash

Increased Automobile Receipts
Cut Car Costs Over \$50
a Vehicle

The high cost of neglecting to build roads is forcibly pointed out in Missouri's annual highway commission report. In 1920, during the height of the bad roads era in that state, the limited mileage of improved highways saved the motorist only 97 cents yearly on the average. In 1927, after the completion of a goodly portion of Missouri's sensible road plan, the saving per vehicle owner through lowered automobile operating costs was \$74.59, or more than \$50,000,000 to all motorists.

But the story gets more interesting when it is related that in 1920 the Show-Me motorist was paying \$7.11 in motor vehicle taxes with a very small comparative return, while in 1927, with gas and vehicle taxes averaging \$21.29, the return, because of improved highways, was 3½ times. By spending more money on a really comprehensive and all-embracing road system Missouri accomplished a tangible road saving.

The motor-car owning public in Missouri through the passage of a \$60,000,000 bond issue which speeded up the highway program three years has been saved \$100,000,000 in that period, states the report. That is to say, if the roads had been neglected for these three years the extra travel cost would have amounted to that enormous figure.

C.A.T.A. Outing

CHICAGO, Sept. 29—Chicago Automobile Trade Association members Tuesday held their annual outing at Grand Beach, Michigan. Golf and horseshoe tournaments were held for prizes and the big annual banquet in the evening topped off the day.

One of the largest gatherings in the history of the association was carried on special trains from Chicago Tuesday morning and returned Wednesday morning.

W. E. Butler was general chairman in charge of the festivities, aided by George C. Norwood, Elmer Rich, W. L. Beckley and Harry Fowler. O. G. Heflinger is president of the association, H. A. Wehmeier is secretary and Thomas J. Hay, treasurer. Directors include C. E. Gambill, George H. Bird, C. R. Dashiell, J. R. Histed, Lafayette Markle, R. C. Tiffany and T. J. Rochford.

Sloan Forecasts Good Trade

(Continued from preceding page)

I appreciate that stockholders have in mind the possibility of some readjustment in the corporation's capital structure, perhaps in the regular dividend rate, at the forthcoming meeting in November. Nothing has been determined or seriously discussed as yet and it is unlikely that the matter will

be given attention for still another month. However, it is reasonable to suppose that the directors will follow the precedent already established of so rearranging the corporation's capitalization that the shares may be popularized to a reasonable extent in order that the stockholders' list may be expanded. It is to the interest of any corporation to enjoy broad distribution of its securities. It is also not inconsistent with this thought that such a readjustment might carry with it an increased regular dividend payment.

So far as General Motors is concerned, I look forward to the balance of the year and into next year with confidence.

Harry Hartz Hopeful

BOSTON, Sept. 27—Manager H. Kirby Shellaby, of the Rockingham Speedway, at Salem, N. H., has received a letter from Harry Hartz, in which the popular driver states that he hopes to be among the entries here Oct. 12 in the annual fall races.

Hartz was smashed up badly last October, and for three months was in the Lawrence General Hospital, and for another month in the Massachusetts General Hospital in Boston. Going to California he entered a hospital there where another operation was performed and some time ago his leg was taken out of its cast. He says he is looking forward to be sitting behind the wheel of his car as his leg has entirely healed. Many thought he never would be able to drive again and his recovery will be welcome news.

Hutchinson Goes Abroad

NEW YORK, Sept. 27—B. E. Hutchinson, vice-president and treasurer of Chrysler Sales Corp., sailed recently for a business trip to Europe.

Marmon Engineers Drive to Coast

Demonstrate Economy and
Speed of Modern Motor
Transportation

INDIANAPOLIS, Sept. 28—Assuming the role of a party of everyday tourists or travelers during a 2412-mile trip to Los Angeles, four members of the Marmon experimental engineering staff have completed a journey during which they demonstrated the growing value of the modern motor car for long distance travel, not only from the standpoint of speed and comfort, but economy as well.

The expenses of the Marmon party were, in fact, only about one-fourth the total estimated cost by train for four people who allow for overnight stops in comfortable hotels rather than continuing railroad travel day and night.

Only 1 qt. of water was used on the journey although the "68" sedan with four passengers was driven over the southern route to the coast which includes travel in desert and mountain regions as well as over almost every conceivable kind of roadway.

Hupmobile Big Game Hunt

VANCOUVER, B. C., Sept. 28—What is known as the Hupmobile big game hunt is being staged by the Hupmobile representatives at Vancouver, Victoria and Kamloops, B. C. They have invited S. L. Savidge, Hupmobile distributor of Seattle, and Gene Hatton for a three weeks' hunting trip in Canada north of Jasper's National Park.



Here's a Winner

IN outboard motor contests this season, Joseph Zubaty, of Flint, was a consistent winner. He took first place in both Class "C" and the Free-for-all races at Bay City, one of the most important Michigan races. Mr. Zubaty, as you probably know, is chief engineer of the AC Spark Plug Company

Trade, Generally, Shows Improvement

Los Angeles

SOUTHERN California sales held up well in September, although total may go slightly under the same month last year. There is a good demand for used cars and distributors expect reasonably good business during the remaining months of the year.

The truck market is improving.

Chicago

RETAIL sales of automobiles in Chicago continued in September the record pace set in July and August. Dealers' stocks on hand are low and used car stocks are regarded unusually scant considering the period of the year.

Cincinnati

MOTOR car sales during the last quarter will show a decided increase over last year and bring the total for 1928 well over 1927, despite the bad spring. Used car inventories, in the cases of most dealers, are declared to be lower than ever before.

Seattle

CAR SALES for the month of September were about even with those of last month, and ten per cent ahead of sales for September, 1927. Sales for the first nine months, however, will be approximately 14 per cent off for the same period of 1927. The past month has seen a big increase in local Ford deliveries.

New York

FOLLOWING eight months of almost record trading, automobile sales in this territory have struck the seasonal fall slump in more than a usual degree.

Sales for the first week in September, the only figures available as yet, amounted to 2837 vehicles as compared with 1158 for the corresponding period last year.

Detroit

COLD weather during the past two weeks of September has tended to slow up car sales in Michigan, though reports indicate that deliveries are keeping ahead of

the rate maintained a year ago. Used car stocks are heavy and many dealers are putting forth extraordinary effort to reduce them.

San Francisco

CALIFORNIA'S sale of all classes of automobiles for August, 1928, not only exceeded the sales of August, 1927, by 26 per cent, but were the heaviest of any month in the last 12 months, according to figures compiled by motor registration news.

Cleveland

AUTOMOTIVE sales in this district are somewhat ahead of the record in 1927, despite a sharp decline in September. Lower stock of used cars are reported. Dealers anticipate that the next three months' business will be under the mark of July, August and September, but considerably better than the last three months of 1927.

Denver

SEPTEMBER in Colorado shows a variation in business among dealers in various makes. Ford demands are tremendously ahead of production, and dealers in general are talking deliveries in from six to eight months. Other light cars report unusually good sales, but light trucks have not had their usual fall demand, owing to deplorable farm conditions.

Milwaukee

PASSENGER car trade looks for an active demand during the remaining months of the year, and the outlook is considered more promising than it was last year and two years ago as well. General business conditions here are considered very favorable.

Atlanta

DEALERS say there has been little change in automobile conditions in this district the past month. September sales are again larger than the same month last year. Lower-priced cars are selling unusually well and medium-priced good, and higher-priced fair. Dealers look for some decline in sales this fall compared with summer business.

Boston

DEALERS in Boston did not expect to have the business increase that marked July and August continue through to the end of the year. They looked for a slowing up about the middle of July with a gradual drop through August. Instead, sales continued better. September was good for the first 10 days. Since that time it has been appreciably slow.

Dallas

WITH a \$500,000,000 cotton crop being marketed in Texas during September, October and November and the financial situation better than it has been for some time, automobile dealers and jobbers are not anticipating any great slump in business during the final quarter of the year, other than the usual hesitation attendant upon approach of the new models. Retail stocks are normal.

Kansas City

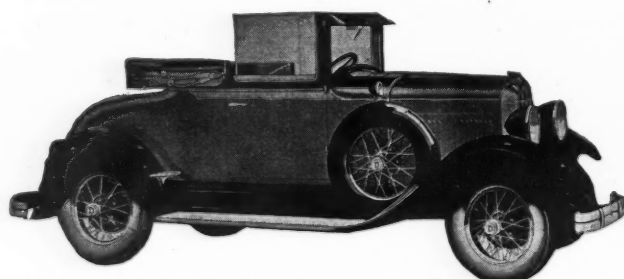
THERE has been a slight recession in automobile sales in Kansas City in September, compared with August and July, but still are better than last year. The falling off is reported by dealers whose lines are without new models in the last few months. Every indication points to an unusual fall and early winter business.

St. Louis

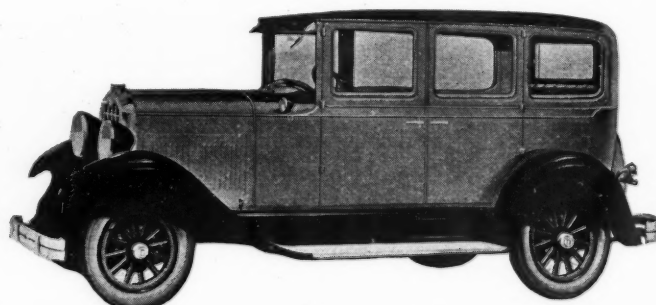
RETAIL dealers did a snappy business during the month. Used cars also sold well and stocks of new cars were reduced considerably. September business has led dealers to anticipate a continuation of the buying tendency at least until the middle of December.

Minneapolis

AUTOMOBILE business is on the gain. Business is an average of 20 per cent better than a year ago. More cars are being bought for cash, the first spring delivery order in about three years is noted by some dealers, the used car situation is on a good basis. The prospects are good for a fall and winter sale of cars.



Durant "60" De Luxe Convertible Cabriolet



Durant Four 4-Door Sedan

Pierce-Arrow Co. Adds New Truck

R-G Model With Extra Large
Load Capacity Sells for
\$5,950

BUFFALO, Oct. 1—Announcement is made this week by the commercial car division of the Pierce-Arrow Motor Car Company of a new heavy-duty unit, the Model R-G truck. The new model has one of the largest load capacities of any truck on the market.

Under the Pierce-Arrow plan of rating, the new truck has a vehicle gross weight rating of 36,000 pounds. The chassis will sell for \$5,950 at Buffalo. It will be made in two wheelbase lengths, a standard length of 14 ft. and a tractor size of 12 ft. Both of these lengths are particularly adapted for maneuvering within narrow confines.

The primary features of the new Model R-G consist of ability to haul huge loads at normal speeds, maximum strength for pulling out of steep declines and an especially sturdy chassis, yielding maximum performance under the most severe operating conditions.

The new Model R-G is the development of Pierce-Arrow truck engineers of a truck for the needs of a group of New York sand and gravel operators, leaders in the industry, that required a heavy, serviceable truck that would haul 10-ton loads with economy of operation and the best performance. A fleet of 31 Model R-G trucks has already been sold to Lanigan Bros., Inc., of New York City and some of the new units are now on their way eastward to fill this big order.

Free Ferry Service

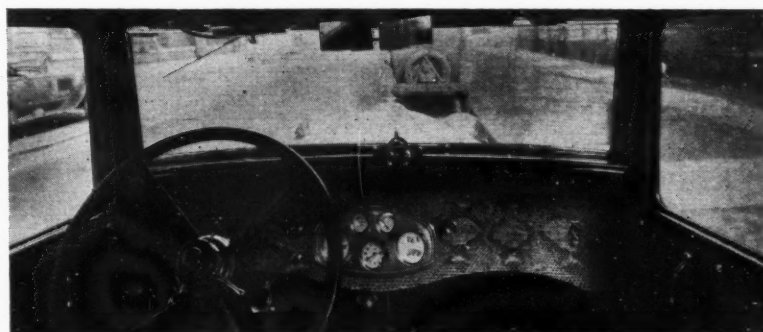
MEMPHIS, TENN., Sept. 29—Free ferry service across the Mississippi River from Memphis to Arkansas was instituted Sunday by the state, pending repair and reopening of the Harahan Bridge, part of the floor of which burned Sept. 15, in the afternoon.

Graham Sails

DETROIT, MICH., Sept. 29—Robert C. Graham, vice-president and in charge of sales of the Graham-Paige Motors Corp., accompanied by Mrs. Graham, is sailing on the Ile de France Sept. 28 to attend the automobile shows in Paris and London, and to make a study of conditions and potential possibilities throughout Europe for 1929.

Weber Gets "Y" Appointment

ST. LOUIS, Oct. 2—George Weber, veteran automobile executive, was recently appointed a member of the Board of Governors of the Y.M.C.A. School of Commerce. Weber has been active in Y.M.C.A. work for a number of years, having helped to develop the Automobile School and School of Mechanical Trades operated by the "Y."



Snakeskin Trim Newest Idea

HERE we have an example of one way in which Stutz Motor Car Co. of America, is utilizing the new snakeskin trim. This material, in addition to its excellence of appearance, is long wearing

George Weber is one of the best known automobile men in the Middle West. The Weber Implement & Automobile Co., Hupmobile distributor, of which he is president, was organized 25 years ago to handle Studebaker cars. He served two terms as president of the St. Louis Auto Dealers' Association and is president of the Auto Dealers' Salvage Co.

AC Twentieth Anniversary

FLINT, Sept. 29—AC Spark Plug Co. observed the twentieth anniversary of its establishment in Flint on Sept. 23. Starting as a spark plug manufacturer in a part of the Buick Motor Co. plant, the company has expanded under the late Albert Champion, founder and first president, and B. W. DeGuichard, now president and general manager, to a producer of 200,000 spark plugs daily, 12,000 speedometers, and one of the industry's largest producers of other accessories and equipment.

Agencies Combine

NEW YORK, Sept. 28—Effective September 15, George Batten Co., Inc. and Barton, Durstine & Osborne advertising agencies have combined and will hereafter be known as Batten, Barton, Durstine & Osborne, Inc. The main office will be 383 Madison Avenue, with branches at Chicago, McCormick Bldg.; Buffalo, 220 Delaware Avenue, and Boston, 10 State Street and 30 Newbury St.

Bridge Repair at Wash.

Motorists traveling the historic Potomac River Highway Bridge connecting the District of Columbia and Virginia will no longer be introduced to the nation's capital by violent shakings and broken springs as formerly. Workmen are busy cutting away ¼-inch steel plates which served as a bed for the asphalt top covering of the bridge roadway and substituting in their place a wood floor seven inches thick made up of 3 in. by 7 in. stringers laid on edge over which will be a 2-inch surface layer of asphalt.

Says Women Are Motorwise Now

Executive Traces Much of
Sales Growth to Knowledge
of Cars

A noticeably large proportion of all Chrysler cars sold are going to feminine drivers, says J. W. Frazer, Chrysler and Plymouth sales manager. They are bought, he says, in line with the growing trend of having a second car in the garage for women members of the household. He ascribes a considerable share of the great popularity of the lower-priced Chryslers and the Plymouth to this second car habit, pointing out that roadsters, coupes and two-door sedans in these models are especially popular with women.

"Style transcends every other factor in its appeal to the feminine buyer," Mr. Frazer declares.

Hillman Entertains

PITTSFIELD, MASS., Oct. 1—Studebaker owners and members of their families to the number of more than 400 were entertained by F. H. Hillman, senior member of the firm of F. H. Hillman & Co., Studebaker dealer, at his big farm on the Hudson in Washington County, N. Y., Sept. 23. The party gathered at the salesrooms and drove to the farm, where a picnic was enjoyed.

Canadian Production Up

WASHINGTON, Oct. 2—August production of automobiles in Canada, as reported to the Department of Commerce by the Dominion Bureau of Statistics, totaled 24,274 passenger cars and 6971 trucks. This compares favorably with a July production of 20,122 passenger cars and 5104 trucks, and with a production in August, 1927, of 10,139 passenger cars and 2387 trucks.

Care in Hiring

A SERVICE station owner spent four days selecting a dog. He looked at a dozen before he found the one he wanted. Finally he made the purchase and returned to his office.

His service superintendent wanted him to pass on the qualifications of an applicant for a position as head of the battery department. A hurried glance at the application, a few words with the man and he was hired.

Greater inconsistency could not be imagined.

Within the service station are positions with widely varying requirements. In every organization there must be a service manager, or one who, in the smaller shops, performs the duties of a service manager along with other work. In this man must be found organization and administrative ability. He must possess leadership, good judgment and broadmindedness. Initiative is also essential in order that his department will develop. It goes without saying that he must be truthful and honest. There is no such thing as being honest with the boss and dishonest with customers. One is either honest with both or neither. With the other characteristics a pleasing personality is important. An understanding of psychology—which is nothing but an understanding of human nature—is desirable because it enables the service manager to get the desired results both from his men and from the customers—merely by approaching them in the right manner.

It is also important that he know local conditions. The service manager should also have a good general mechanical knowledge and above all he should be a business man.

Impossible to get all of this in one man? Not at all. Our industry has many such, but they are not

Here's a New Slant on the Personnel Problem of Service Station Management

drifting around looking for jobs and the shop owner who needs a good service manager must be willing to invest the price and even then he may look long to find his man or be forced to take a desirable man from the ranks and train him for the job.

This latter procedure has been adopted by many shop owners, who have found that it simplifies the problem of getting men for advanced positions and does much to keep employees contented.

Where the practice is followed the employees are quick to sense the justice of the organization and are satisfied with their jobs, feeling as they do, that advancement will come to them instead of their being held down by outsiders who are hired for the better positions.

With regard to getting new employees of the better class, where may one look?

Possibly your organization has attracted applicants whose names are on the waiting list for openings. First consideration might properly be given to these for the reason that *they have actually sought the job*. They evidently have a real desire to connect with your organization and, provided they have the necessary qualifications, will probably make permanent employees.

Your shop men frequently know of those who are qualified to fill certain vacancies and who would be glad to work for you. Provided the friendship is not so close as to result in an overstatement by your present employee regarding the ability of the prospective employee this source of labor is a good one. One thing to watch out for, however, is the possibility of hiring those who are so intimately acquainted as to waste your time in idle gossip. The hiring of close friends or relatives of the foreman or service manager is dangerous. The old employees will anticipate that the newcomers will be favored and even if they are not so favored, the suspicion will still exist in the other workers. One of the most inefficient shops that I ever saw was staffed entirely with school friends of the owner and relatives of his wife. It was a money loser.

Many a worthy mechanic had his early training in a trade school.

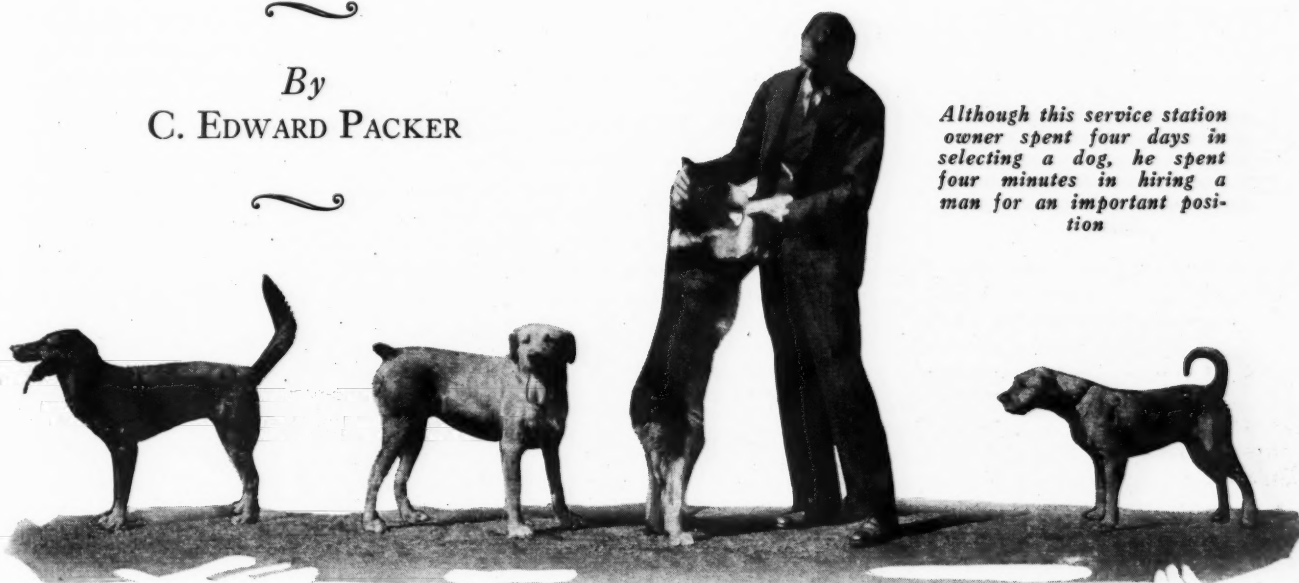
Whatever the source of the new employee, his first contact with the new organization will determine to a large extent his future value. Any indication of laxness on the part of the employees at the time of the interview will tend to make him lax. Any lack of care in investigating his credentials will be likely to make him careless about his work and will reduce his respect for his new job. In this connection the use of a formal written application blank will be advantageous. It not only serves to impress the applicant with the thoroughness of the organization, but, properly used, serves as a valuable source of information for the employer. It is not necessary to have an elaborate application blank. Almost anyone can draw up a form that covers the main

"I Can't Get Good Men—"

THE author of this article, who as service manager has had as many as 85 men in his employ at one time, believes that getting good help is largely a matter of hiring and training. It is his opinion that, despite the all too common complaint of inefficiency, there are more able mechanics today than there ever were. Articles in succeeding issues will take up other phases of service station management. Watch for them.

g May Save Firing

By
C. EDWARD PACKER



Although this service station owner spent four days in selecting a dog, he spent four minutes in hiring a man for an important position

points and have a number of them typed, or run some off on a duplicating machine.

Of course such items as the applicant's name, address, telephone number, age, education, experience, whether married or single, and the number of dependents will probably be desirable bits of information. At least three references should be obtained. These should include the last three employers for whom the applicant has worked. I have found that recommendations that an applicant carries with him are usually not worth the paper they are written on. The best way to get the proper information is to do your own investigating.

One instance of failing to investigate an applicant comes vividly to mind. A clean looking and most agreeable chap applied for work one day. He had his tools with him and seemed very well informed on the make of car in which we specialized. His calloused hands and ability to answer all questions seemed ample evidence of his worth. We had him fill out an application that we might check up on him—but we never did.

Several months passed. He was doing good work. Finally he was placed in charge of several men who specialized in reconditioning used cars. In addition to being a hard worker he made a good "straw boss" and we thought we had a "gold mine." The error was that it was his gold mine—not ours. It all came about a few days before Christmas when his wife called and explained that her husband was sick. Of course we were sorry and advanced him several days' pay. A few days later the Christmas bonuses were made up and I decided to give this man his in advance because of his apparent dire need.

On arriving at his house I found it occupied by a detective who was trying to trace him. He was a "fence" for stolen cars. When he left we immediately noticed a dropping off in the number of tires and other articles required by our used car department.

In checking up on references it is your job to make it as easy as possible for the former employer to reply. This means that the inquiry should be made in such a

way that the answer needs merely the checking and signing of a sheet. A stamped return envelope should be enclosed.

It seems but human nature not to knock a man. While that may be a virtue it may be carried too far. If an employee has left for cause it is only fair to let future employers know the cause.

As previously mentioned, full reliance should never be placed in references. A capable service manager can tell in a brief interview about what a man can do. Unfortunately some of the poorest men put up the best "front" when seeking a job, but a fair kit of tools, hands that show signs of hard work, and a concise and businesslike way of answering questions are generally the signs of a good mechanic.

As the foundation of any business is its personnel, the greatest of care should be exercised in selecting employees. And after they are selected nothing should be done that will let them conclude that anything but the best and most carefully performed work is good enough. The care and attitude of the management have much to do, not only with the selection of the right kind of help but in keeping the help right.

It is a striking fact that many of the best service managers have been recruited from the personnel of the repair shop. I have in mind two who have attained considerable reputation. Both are in great demand as speakers at conventions and have traveled over a considerable portion of the continent addressing various gatherings on the way in which profits may be made from the service station. Both of these men and others like them were picked from the ranks of mechanics as being worthy. They went through the various jobs of the shop and today are among the best that the industry has.

Before looking outside of your shop for that service manager, may I suggest that you carefully consider the men in your employ. There may be a potential service manager among them who is now holding down a very ordinary job.

Less Than \$3,000

That's the Average Pay for Car Salesmen

AUTOMOBILE dealers who have been dissatisfied with the quality of salesmanship exhibited in their organizations may be interested to learn that recent surveys tend to show that the average automobile salesman earns considerably less than \$3,000 a year, which on current standards is rather low. Figures of this character offer a valuable basis for comparison.

But the same studies also make it clear that there is plenty of opportunity for able men to earn an adequate return for their efforts at selling automobiles, indicating that what is necessary is not an indiscriminate advance in the compensation of salesmen, but better incentives and better management, to the end that men qualified to do the job properly will be attracted and held. It is the rapid turnover of men improperly selected, insufficiently trained and paid on unsound compensation systems that is the core of the problem.

The surveys were undertaken by MOTOR AGE and other Chilton Class Journal Co. publications in the endeavor to uncover some of the facts in a situation that is being widely discussed by factory executives, a few of whom have developed figures showing the compensation of dealers handling their own lines but are not in position to know directly conditions in competing lines.

One of the accompanying tables shows payment last year to the salesmen of 34 dealers in almost as many cities. The representation is not large numerically, but is well diffused territorially, and as will be shown, the result checks remarkably close with those ob-

tained from other studies. The averages obtained, furthermore, are not likely to be too low, since it is reasonable to assume that the better type of dealer, with the best paid salesmen, would be most apt to have figures of this character readily available for reply to a questionnaire.

By way of obtaining a better idea of compensation in the small towns, a personal canvass was made over a large section of Pennsylvania, and this tabulation is also presented herewith. As might be expected, the average in the small town dealerships is somewhat lower, but this is due to the scaling down of the "highest" classification rather than the "lowest." In a small dealership the proprietor is usually the star salesman. The fact that the lowest paid men average higher compensation than those similarly situated in the cities is probably due to the greater stability of employment. The floater class of salesman is largely confined to the metropolitan areas.

The grand average for large and small points covered is, lowest, \$1,863.83; highest, \$3,807.74, and average, \$2,490.52.

Another analysis, that of the Newark Automobile Trade Association covering 21 dealers in the Newark area, showed an average return for all salesmen last year of \$2,945, which is reasonably close to the figures obtained in the broader surveys.

The Newark study sheds some valuable light on the important matter of turnover. Although 428 salesmen were employed during the year, only 116 of them stayed in the same place the full period, or slightly more than 27 per cent. Naturally those who stayed averaged better compensation. For the 16 Newark dealers selling medium and low-priced cars, the permanently employed salesmen averaged \$3,407; and for the five dealers selling higher priced cars the permanently employed men averaged \$5,261. The latter figure is almost double the average for the men who quit or were with the dealer less than a year. (Earnings for

Report of Salesmen's 1927 Incomes From 34 Dealers

City	Salesmen	Lowest	Highest	Average
Denver	7	\$1,383.02	\$3,429.68	\$2,606.88
Atlanta	2	1,200.00	4,500.00	2,850.00
Salt Lake	15	1,570.80	4,072.68	2,576.76
New York	15	3,188.68	4,358.61	3,850.40
Olympia (Wash.)	5	1,185.00	1,950.00	1,545.00
Rochester	9	1,100.00	4,600.00	1,600.00
Buffalo	10	1,500.00	3,600.00	2,500.00
Binghamton	4	1,164.00	2,652.00	1,548.00
Atlanta	10	1,500.00	5,200.00	2,800.00
St. Louis	22	1,500.00	6,600.00	2,600.00
Des Moines	5	1,175.00	3,745.00	2,755.00
Seattle	6	1,300.00	6,700.00	2,821.00
Miami	6	3,000.35	3,758.74	3,100.00
Boston	12	2,100.00	4,400.00	2,800.00
Birmingham	11	1,708.71	3,809.30	2,719.52
New Orleans	12	1,000.00	4,000.00	2,000.00
Cleveland	10	1,926.00	3,695.00	2,225.00
St. Paul	8	2,109.00	3,465.00	2,617.00
Boston	10	2,486.96	3,426.74	3,054.63
Roanoke	6	1,200.00	2,600.00	1,750.00
Seattle	20	1,800.00	4,172.00	2,077.00
Mobile	3	1,200.00	3,000.00	1,800.00
Birmingham	20	1,000.00	2,400.00	1,800.00
Minneapolis	8	600.00	3,600.00	1,500.00
Los Angeles	30	.....	.....	3,336.00
San Francisco	20	3,130.63	7,382.91	3,600.00
Charlotte	7	1,450.00	4,400.00	2,150.00
Kendalville, Ind.. ..	2	500.00	1,400.00	950.00
Boston	15	1,200.00	7,000.00	1,800.00
Toledo	10	1,750.00	6,495.00	2,681.00
St. Louis	8	2,500.00	7,500.00	3,725.00
St. Louis	25	1,800.00	3,600.00	2,500.00
Dayton	12	1,750.00	5,700.00	2,750.00
Philadelphia	30	4,000.00	14,000.00	6,000.00
Average		\$1,690.24	\$4,683.29	\$2,558.47

a YEAR

By John C. Gourlie

men employed less than a year are adjusted to a yearly basis.)

Taking only the permanently employed men, it is seen that 30 per cent of the salesmen for the medium and low-priced lines earned more than \$4,000 a year, while 72.9 per cent of those selling high-priced lines were above the \$4,000 mark. There were three men who earned more than \$10,000 last year. Viewed in this manner, the rewards possible for a steady worker do not appear unattractive, but the fact remains that the average compensation of automobile salesmen, judged by almost any of the current standards, is low.

For instance, the Dartnell Corp., Chicago, recently made a report on the earnings of salesmen in other than automotive lines. Some of the figures follow:

	Average	Increase or Decrease Since 1923	Commis- sion %
Vacuum Cleaners	\$1,750	Same	20
Typewriters	2,600	Increase	10-20
Oil Burners	3,750		5-10
Storage Batteries	4,000	Decrease	5
Securities	4,000		
Washing Machines	4,200	Same	10-15
Adding Machines	4,800		22½
Machinery	5,000	Increase	2-5
Refrigerators	5,000	Increase	7-20

In only two of the lines covered, it will be noted, are earnings clearly less than the average for automobile salesmen. It is such considerations as these that have turned the spotlight of study on methods of hiring, training and compensating salesmen.

The dealers themselves are fully alive to the average inadequacy of salesmen's compensation. The following letter from a MOTOR AGE reader is typical in spirit, though not in detail, to a number received while the survey was being made:

"Volumes could be written on the subject of the earnings of automobile salesmen. We feel that it is very fortunate that the earnings of automobile salesmen have been permitted to sing to the low scale that they have during the last few years.

"We in the motor car business are handling a very difficult sales situation. In the first place we are handling a high-priced piece of merchandise with an established price, with the keenest sort of competition. Coupled with that is the need in almost every sale of making a purchase from your new car buyer.

"Speaking broadly, the class of men now engaged in this difficult sales work are of too low a caliber to make the proper impression on prospective motor car buyers.

Compensation of Salesmen for Small Town Dealers

City	Salesman	Lowest	Highest	Average
West Chester, Pa.	6	\$600	\$2,500	\$1,500
West Chester, Pa.	1	3,390	3,390	3,390
Doylestown, Pa.	2	1,800	2,400	2,100
Easton, Pa.	6	3,200	4,200	3,675
Doylestown, Pa.	2	1,700	2,300	2,000
Media, Pa.	3	1,500	2,700	2,250
Media, Pa.	1	2,300	2,300	2,300
Media, Pa.	2	1,800	2,150	1,975
Rising Sun, Md.	1	1,550	1,550	1,550
Oxford, Pa.	2	1,500	2,000	1,750
Elkton, Md.	2	1,750	2,000	1,875
Downingtown, Pa.	1	1,800	1,800	1,800
Coatesville, Pa.	2	2,374	2,949	2,662
Lancaster, Pa.	10	2,000	5,000	3,200
Lancaster, Pa.	1	3,500	3,500	3,500
Coatesville, Pa.	2	1,750	2,100	1,925
Lancaster, Pa.	4	1,000	2,500	1,750
Coatesville, Pa.	2	1,200	1,500	1,350
Easton, Pa.	7	1,500	4,200	2,000
Easton, Pa.	3	750	3,000	1,900
Doylestown, Pa.	3	1,000	2,000	1,450
Elkton, Md.	2	1,750	2,250	2,000
Media, Pa.	1	2,500	2,500	2,500
Oxford, Pa.	2	1,500	2,500	2,000
Bethlehem, Pa.	1	3,350	3,350	3,350
Bethlehem, Pa.	5	2,100	4,200	3,000
Bethlehem, Pa.	4	3,000	3,900	3,400
Allentown, Pa.	8	2,500	4,100	3,300
Allentown, Pa.	2	2,800	3,300	3,100
Allentown, Pa.	6	3,000	4,300	3,400
Allentown, Pa.	6	2,700	4,500	3,200
Average		\$2,037.42	\$2,932.25	\$2,422.58

"In our humble judgment there are more incompetent salesmen in the automobile business than we have any use for. They are wasting their own time, and their employers' money. The correction, we believe, is less men of a higher caliber, to be paid with some regard to what they could earn in other lines of endeavor with the same degree of intelligence and energy.

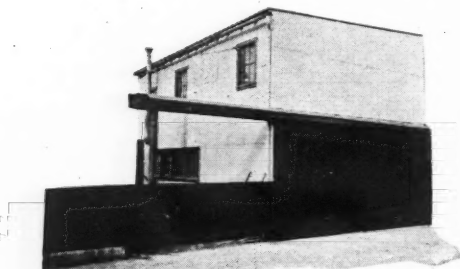
"While it is undoubtedly true that 10 men can sell more automobiles than five, it is just as true that 10 men cannot sell twice as many automobiles as five unless the size of the dealer's business requires the services of 10 men in order to properly cover his clientele and new inquiries. If this statement be correct, then it is obvious that by having 10 men on a given force where five can cover the field, that the dealer is either going to lose money because of too high a sales cost, or the 10 salesmen will be so poorly paid that their efficiency will be reduced and they will eventually drift off to something else."

Very seldom is a suggestion made that salesmen ought to receive more payment for given results than is the practice now. It is felt that the current return of approximately 5 per cent on sales ought to be sufficient, and that the dealer ought to be able to make the work and the payment attractive to good salesmen on this basis.

Consequently the most active, progressive factories in the matter of sales promotion are seeking to help the dealer train his salesmen and offer them constant assistance and guidance in the search for prospects and the follow-up of leads. But the actual method of compensation, as distinguished from the rate, remains an important question susceptible of treatment in a

(Continued on page 36)

They STARTED



Then...

THE Keiser Brothers of Pottstown, Pa., didn't know what the automobile business "used to be" because they had never had any automobile experience. Six years ago they were trying to make a truck earn enough money for the two of them to live on—and still have enough left over at the end of every month to pay expenses and the monthly note on the truck. It is significant of their later success that even in those lean days they paid their bills before anything else, working nights in their father's restaurant for whatever spending money they needed. If you don't think 12 or 14 hours a day on a truck and an added hour or two of hash slinging is a job try it.

By the time the truck had been paid for the brothers decided that one truck wasn't going to make a fortune for either of them. They wanted to sell automobiles. They learned that the Studebaker franchise in Pottstown was open: so they drove into Philadelphia to find out how one entered the automobile business.

They came home with their ambition still as far from attainment as ever. For they had to buy three cars and operate a service station to get the franchise—and they lacked money even to hire a mechanic. But they had faith and sincerity and it was these characteristics that led the Philadelphia branch to follow them up. A representative of the branch asked some questions at a Pottstown bank, and the banker asked some questions of the two brothers. Money was forthcoming, and the three cars were soon delivered.

They sold the first one in February of 1922. The salesroom was a shed behind their father's restaurant. Meanwhile the boys were trying to find a showroom and service station. There was only one other automobile showroom in town, but they decided that to sell cars they'd have to display them. Before long Keiser Brothers had opened the second showroom in Pottstown—on a three months' lease. They hired a

mechanic—the best they could find, and paid him \$40 a week.

Taking on the mechanic was the step that put them into business. They had to scratch pretty hard to get enough work to pay his weekly \$40 that spring. There were only seven Studebakers in town when the boys got their franchise, so they took in anything and everything in the line of jobs.

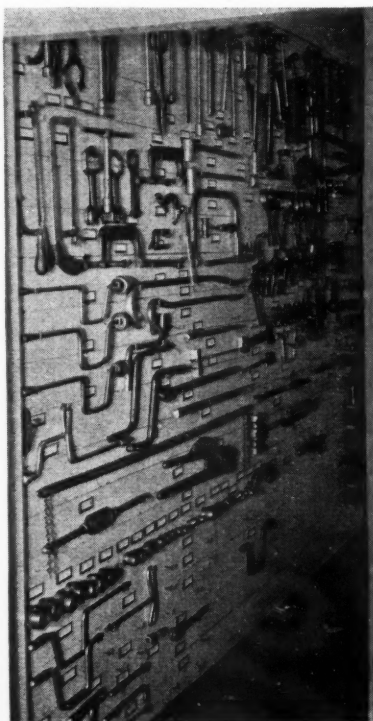
The quality of their work spoke for itself. Their mechanic was a thorough workman, and the boys saw to it that every customer left the shop thoroughly satisfied with the job they had done for him. "If it's not right, bring it back and we'll make it right," they told the customer. "And it won't cost you any more. We're supposed to know our business, and we think we do. When we've fixed your car and charged you a fair price for the work, it's got to be fixed right."

That attitude, plus the quality of their work, spoke for itself. By the end of the summer five mechanics were at work, and the brothers had found it advisable to divide forces and specialize. Sam Keiser sold the cars; his brother stayed in charge of the shop and built good-will with satisfied customers.

By fall the brothers found they were able to pay themselves a salary of \$15 a week apiece. Up to that time, they "paid bills first and drew what was left, if any." But when the end of the year came they had sold 52 cars and had established the groundwork for an invaluable reputation for good service and fair dealing.

Their first year's sales, incidentally, were nearly 100 per cent in excess of what the factory branch had estimated the market would absorb. At the end of the three months' lease on their first showroom they found another more suitable for their growing business, and in a better location. There they stayed for three years, while the business grew. In 1925 they were able to build their present establishment on High Street, an ideal location, and a building that would do credit to any city.

The service station has seven mechanics, and the first mechanic they



Through the toolroom doorway

On FAITH

By
Arthur Moulton



hired is still on the payroll as service foreman. They are the best mechanics that can be hired, say the brothers, and there's not a man in the station, with the exception of the car washer, who gets less than an average of \$45 a week. The average shop wage for the town is from \$35 to \$40. E. I. Keiser is still in personal charge of service work, meeting the customers as they come in, helping to diagnose their needs, and seeing that everybody goes away satisfied.

The shop is as clean as whistle. All service tools are kept in special racks on a big white wallboard adjacent to the parts room. Before the men leave each night, the service foreman checks that wallboard to see that every tool is in place. The parts stock is unusually complete. Owners are rarely kept waiting for their cars because of the non-arrival of parts that have been ordered to complete a job.

Service is the link through which the brothers keep in touch with fully 90 per cent of their owners. They offer a new owner free inspection at the end of the first 500, 1000 and 1500-mile periods, and they do a thorough job of selling on the importance of these inspections. If the owner doesn't bring the car in they find the reason why, for they have learned that these three inspections not only develop confidence and good will but are also the best service insurance they know, as it stops mechanical troubles before they get started.

Service letters recommending winter and spring overhauling bring additional business to the shop. During months when a drive is on for "overhaul jobs" the brothers

... And Now

offer their salesmen a bonus on accessory sales as an incentive to follow up the service letters. As a result, accessory sales often total more than \$1,500 for the months when service specials are being offered.

One of the most important assets in the Keiser Brothers' business, they believe, is the "Studie Club," whose membership includes everybody in their organization. Meetings are held once a month, and attendance is required of every employee in the company. Every member of the organization puts some portion of his salary in the club sinking fund, and can draw on it to the limit of his individual account for Christmas funds, vacations or sudden emergencies.

Service is stressed again at these "club" meetings. Mechanics and salesmen must study their service manuals before the meeting, and answer service quizzes during the meeting. Frequently a speaker is secured who lectures on some particular unit of the cars.

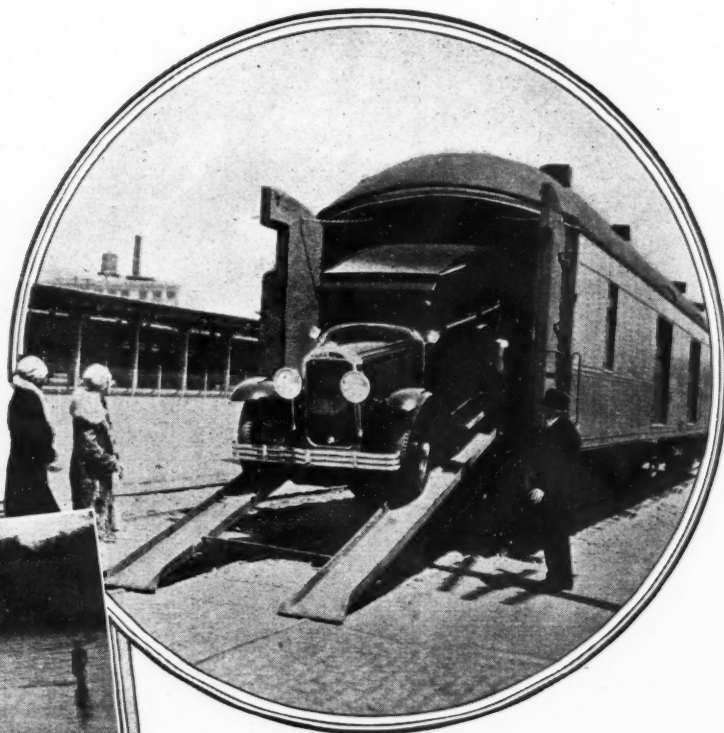
The meetings develop cooperation among the members of the organization, and frequently produce practical ideas which are turned to good advantage in sales and service.

MAYBE the automobile business isn't what it used to be, or maybe—as Chas. Vane, Secretary of N.A.D.A. says "It never was." But when a couple of energetic young fellows decide they want to sell cars—and when in less than three years they establish themselves as one of the most prosperous dealers in a conservative Pennsylvania city of 17,000—when they buy an \$80,000 building and include in their assets a priceless reputation for good service and dependable dealing—well, it more or less proves that selling cars is profitable. Read the story.

"Sell them on service and keep them sold with service" is a workable policy for the Keiser Brothers. Six years ago they were just a couple of hard-working boys. Today Sam Keiser is president of the local automobile dealers' association and a member of the board of directors of the Pottstown Chamber of Commerce, and of the local Y.M.C.A. And just six times in those six busy years have they seen a motorist to whom they sold a car drop from their active list of owners.

An Old Favorite —and Others

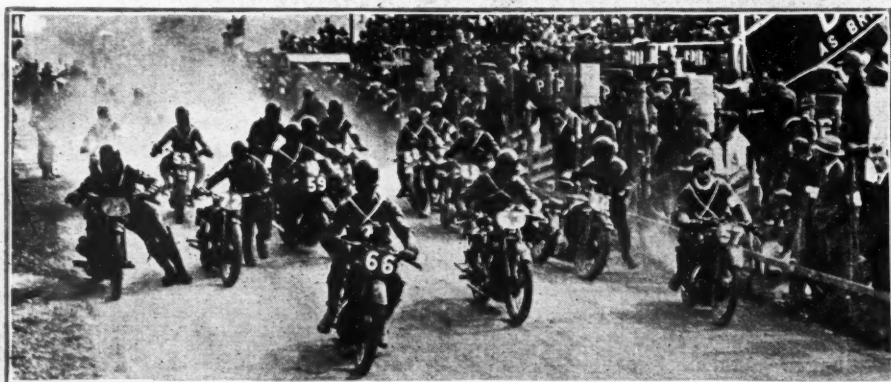
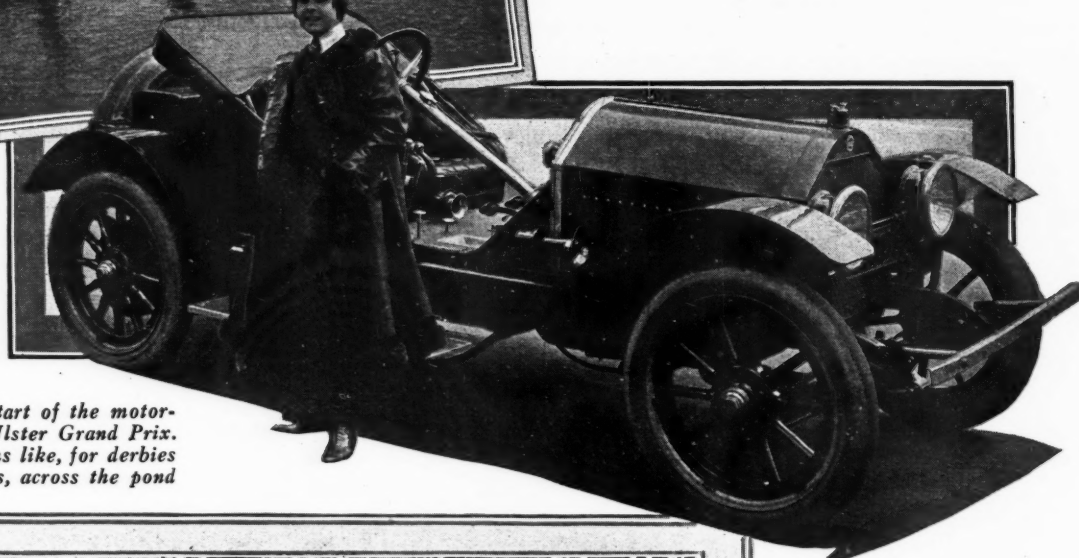
This special baggage car for automobiles is placed at the motorists' disposal by the Southern Pacific—the railroad, not the ocean



Chevrolet's Capetown to Cairo expedition, successfully concluded, had to put up with conditions like this. A remarkable victory



Here we have the start of the motor-cycle race for the Ulster Grand Prix. They're strong, seems like, for derbies and ulsters as prizes, across the pond



"Ill-us-terated songs, followed by chapter 4 of 'The Per'ls of Pauline,'" was the way our announcer used to read off the program for next Monday. Pearl White, America's most beautiful actress, was the heroine

He Sold 258 CARS In Half a Year

*Melvin Williams Moves Faster
on Crutches Than Most Men
Do on Two Feet*

By PRESLEY E. BRYANT

COURAGE, character, friendliness, an equable disposition and persistence—particularly persistence—are the requisites of successful salesmanship. If you have control of these attributes you will win your way, and physical handicaps will not hold you down.

This is the opinion of Melvin L. Williams, Dallas, Tex., used car salesman, whose record for the first six months of 1928 is believed to surpass that of any other man in the ranks. During the first six months of this year Williams averaged 43 used cars a month. He reached a peak of 47 cars in one month.

The death of his mother in August pulled down Williams' volume, but he is steadily building it back. During the first 19 days of September his sales totaled 25 used cars.

"Shorty," as nearly everyone in Dallas calls him, is 31 years old. He has been crippled ever since he was seven, when he fell out of a barn and crushed his back. He goes about on two crutches, but he is deft and fast and maintains excellent health.

He has a genius for making friends. He has a contagious smile and an amazing memory for people and the things that interest them. With the exception of about 17 months, he has spent his life in Dallas and has a wide acquaintance. He doesn't admit that he is much of a salesman.

"People are always bringing me business," he said. "The main idea is to treat people right. They appreciate it. Don't lie to them. The real secret of my success in selling used cars is that the people I work for are the finest people in the world. And their used cars are the most you can get for the money."

Williams' record of sales was established at Store No. 1 of the Shelton Chevrolet Chain Used Car Stores.

"Shorty goes all over a car with his prospective



MELVIN WILLIAMS was congratulated by R. W. Losey, Dallas, Texas, Chevrolet zone manager, as the leading used car salesman in the United States, during the convention at Fort Worth of the Dallas 72-Car Club

buyer," J. W. (Bill) Beazley, Jr., general manager of the used car stores told the writer. "He makes the prospect see the value that is left in the car. He never exaggerates and he never lies. He studies each car and acquires an exact knowledge of its condition and value, and then he inspires the customer with his confidence in that car. He works all the time, and every time he sells a car he makes another friend. Someone is always coming into the store asking for him."

"Williams is a shrewd judge of human nature and has a sound sense of values," Frank Beck, assistant used car manager in charge of credits, said. "He never goes through with a customer who doesn't seem right to him. He frequently comes into my office and says: 'This fellow seems to be O.K., and of course you're the judge, but I wouldn't want to take him on myself.' And Shorty's usually right."

He has been selling used cars six years. And that is the extent of his selling experience. He had been doing clerical work for an oil company and assembly work in an electric plant.

"I decided I wanted to get out from under a roof," he said. "I knew N. E. Harper, one of the pioneer used car dealers in Dallas, so one day I went to him and asked for a job. He said, 'You can stay if you want to.' He paid me 3 per cent on each sale. I found a couple of boys and sold them a little touring car. I think I made about \$8 on that deal. I had a guarantee of \$20 a week and 3 per cent commission if I sold

(Continued on page 42)

This model plant is the home of Dixon & Horney, Texarkana, Arkansas. It replaces the former building which was destroyed by fire last year

By A. W. Roe



Location—Equip

*—and the LAST of These as Usual
Proved to be the FIRST*

ONE morning in January, an hour before the roosters had begun to crow in the yards on the side streets, a tourist drove into the rebuilt \$100,000 service station of Dixon & Horney, Inc., in Texarkana, Arkansas, and asked the night boy on duty this simple question:

"Where is the post office, friend?"

"Across the street, sir," the lad replied, thinking the stranger wanted to mail a letter.

"Then I'm in the right place," the tourist rejoined. "Your building is new and I couldn't see a sign, but I saw your billboard out on the Fulton ferry road. You know, that phrase of yours, 'The Post Office is Just Across the Street,' sticks in the memory. That's the reason I'm here."

The night of June 14, 1927, the Dixon & Horney service plant was gutted by flames. The estimated loss was \$85,000. But that didn't faze the owners and operators of the business. They had a successful record back of them, and the future was promising. The Texarkana paper of the following morning carried an announcement the tenor of which was like this:

"The Post Office is Still Across the Street. With the sky our roof, we are still doing business—Giving the same dependable gas and oil service as in the past. We have competi-

tors in price but none in service."

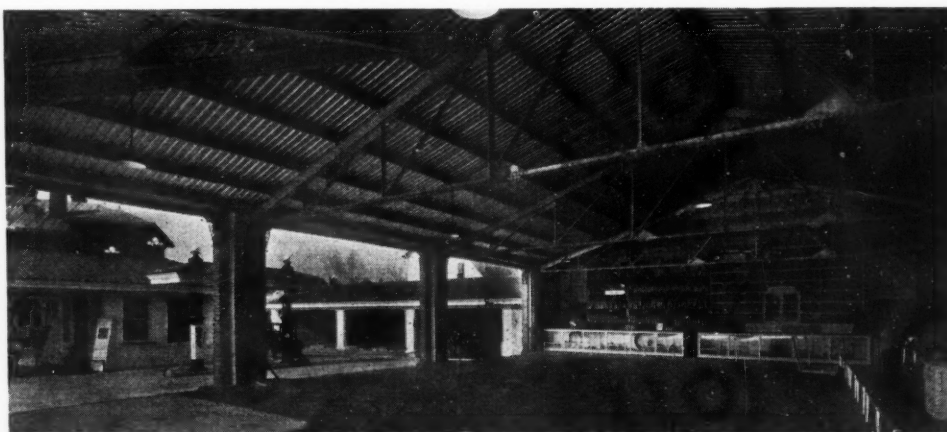
Three factors, or rather three factors in happy combination, make possible such optimism as that which was expressed in this newspaper advertisement, and to these credit is due for the success of Dixon & Horney, Inc.

The factors are: Location, Equipment, Service.

The whole story of the success of Dixon & Horney is contained in these three words, but let us look a little closer into details. There ought to be several things here helpful to men in the business of servicing automobiles.

"Pink lights won't make a service station," was the caption of a story recently featured in this business paper—the substance of which proved there is more in a good location than in a dandified station building. W. R. Dixon and J. O. Horney were convinced that location was the prime factor in the service station business equation when a few years back they came to Texarkana, a town of 30,000 souls, and obtained a place for their business just across the street from the post office.

It is not necessary to go further into the strategic value of their location than to say that at least five main city streets, arms of cross continent highways, center around the post office at Texarkana. The post office building stands out.



Interior of Dixon & Horney's service station. This canopy is 140 ft. long and 80 ft. deep



ment—Service

like a beacon. Texarkana is a state line town, being partly in Arkansas and partly in Texas. State Line Street, a main business thoroughfare, forks and turns around the post office. Thus the wisdom of Dixon & Horney in selecting their location needs no further proof.

After coming to Texarkana from Vivien, a small town in Louisiana, they went to work and built a handsome station, but when it was completed they did not stop and just sit back, supinely waiting for business to gravitate to them. They have always been great believers in advertising, and early in their Texarkana career they invented the phrase, "The Post Office is Just Across the Street," which is still the firm's slogan.

Formerly it was true that when you crossed the ferry at Fulton, 19 miles out from Texarkana, a courteous boy would hand you a card that directed you to the service station of Dixon & Horney. Approach Texarkana today on any of the six or seven main highways that lead into the city, and you will have to be mighty impervious to billboard scenery if you do not find at least one handsomely painted bulletin that directs you to "Dixon & Horney, Inc." These boards almost invariably carry the phrase, "The Post Office is Just Across the Street."

So much for location. What is location, anyway, without equipment? The day has passed when Roger Williams on one end of a log and a student on the other end made a university. Likewise it is true that the service station of today must be something more than the remodeled blacksmith shop of yesterday. But let us see what equipment means at the new station of Dixon & Horney that was opened in all its departments in January, 1928.

Equipment includes well-planned buildings at Dixon & Horney's. There are two of these—a filling station



Many wayside signboards are used by Dixon & Horney, of which the above is a good example

of conventional L pattern that sits in the arms of a bigger L building that houses the general office and the service departments. The entire lot takes in a space 140 ft. by 140 ft., facing on two streets. It is all paved. There are no regular entrances. You drive your car in anywhere that is open, stop at

a convenient gas pump, and leave when you get ready. The service floor is likewise without impediments of runways. No cards direct you. You just drive under the big canopy of this building, which is 140 ft. long by about 80 ft. deep, and wait. You won't have to wait long, because a salesman-mechanic, or most likely J. O. Horney himself, will be giving you the glad hand on the double-quick. But that's getting into the service end of the story.

The visitor is impressed by the utility of the arrangement of the entire station plot. This service building has a general office on the right as you enter. Next comes the vulcanizing department, then the tube repair department, and the battery department. Across the far end is the accessory and the tire departments. Accessories and smaller items are kept in glass counter cases or on shelves that can be locked at night. The tire stock on display is kept locked to the racks. Farther out on the lot are the washing and greasing stands. The greasing stands are built over pits that make it convenient for the lubricator to stand up under cars. Both Alemite and Zerk lubricating systems are in use.

Underneath the pavement of the station is a unique basement, finished and concreted, so that a big business in car storage can be done.

But equipment also means machines at this super-service station. Take the vulcanizing department as an example. It is equipped with six electric vapor vulcanizers, set on a concrete base in a compartment

LOCATION — EQUIPMENT — SERVICE

that is as neat as a hospital kitchen. The lighting system, timing system and electrical power system, all make it possible for these six cooking machines to be operated by one man.

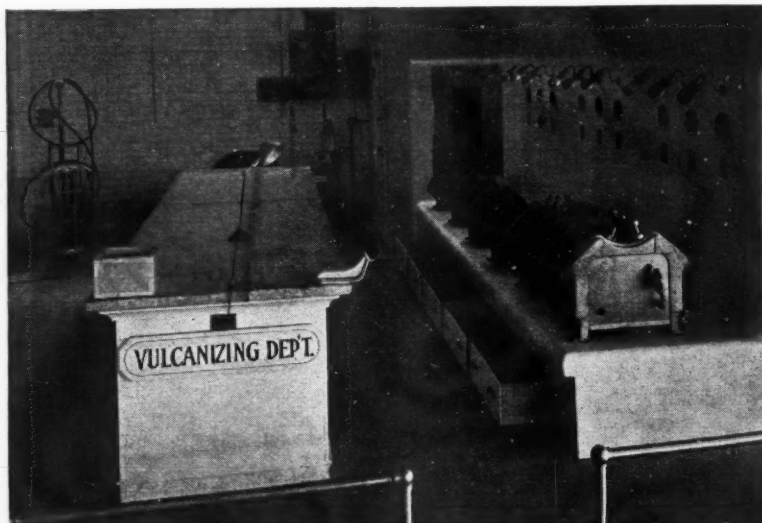
Following down the line from the vulcanizing department, one comes to the tube repair department. A feature of this department and of the vulcanizing department is that spreaders and other devices are used to show customers exactly where the punctures and defects in their tires and tubes are. There is no time lost in finding the weak spots and in advising the customers as to the kind of repair needed and the cost. Expert salesmanship gets the orders here.

Service is such an abused word that the writer would hesitate to introduce it if it were not that Dixon & Horney have given it a new interpretation. At this service station service means speed and courtesy.

Not only does the station deal in quality products and put out jobs that are as mechanically perfect as intelligent workmanship and the best machines can make them, but it does all this in record-breaking time.

"Call 205 and watch our smoke!" was the caption of a series of painted outdoor boards that Dixon & Horney used recently to feature the company's commodities and services. To make this smoke business real, a fleet of six service cars and one wrecking outfit is maintained. These are painted in white and black, and make a nifty turnout as they spin along the streets—moving signboards in themselves. Dixon & Horney, Inc., is the official AAA service station for the two counties in which the state-line city of Texarkana is situated, and the service cars answer calls anywhere in those two counties.

But when a job is received in the service sta-



Tire repairs are an important branch of Dixon & Horney's service business

a matter of business religion. Every employee of Dixon & Horney, Inc., is a potential salesman. A thing that he must never lose sight of is that he represents the company, and that it is likely to be judged by the way he responds to customers. Salesmanship meetings are held on Monday nights, and every employee from the department heads down to the roustabout must put in an appearance. Tactful ways of meeting the public are among the subjects of discussion at these meetings.

And so it is that when a woman drives into the service station she is met with the same courtesy that she would expect at a department store. The nature of her repair job is explained to her, and if she cares to, she may watch the procedure as the mechanic makes the repair. The work departments, as has been explained, are all open to public view, and this fact undoubtedly inspires confidence in regular customers because they can see with their own eyes just how their jobs are being handled. What are the fruits of speed and courtesy? Here are two good-sized plums. 2400 tires were repaired in the vulcanizing department in one year. That was before the present equipment

was put in. Forty thousand dollars worth of tires were sold in the same year. These satisfactory volumes should not be credited entirely to speed and courtesy. Of course, not. Quality products and quality services played an important part.



The window trims are on a par with the rest of the up-to-date establishment

New Landis Shock Diffuser

*Design Includes Provision for Altering
Action to Suit All Car, Load
and Spring Variations*

THE Landis shock diffuser, manufactured by the Landis Engineering & Mfg. Co., Waynesboro, Pa., developed by F. F. Landis and assisted by Mark H. Landis, is the result of 17 years of research on the subject of hydraulic control of spring recoil. F. F. Landis is also known for his development of the Landis cylindrical and internal grinder, Landis bolt threading machines, Geyser threshing machines, Landis program and recording clocks, etc. The shock diffuser is of the one way type using a rigid connecting link between the operating arm and the axle; an adjustable by-pass is also a feature. The recoil control characteristics can be varied to suit all types of springs and car weights.

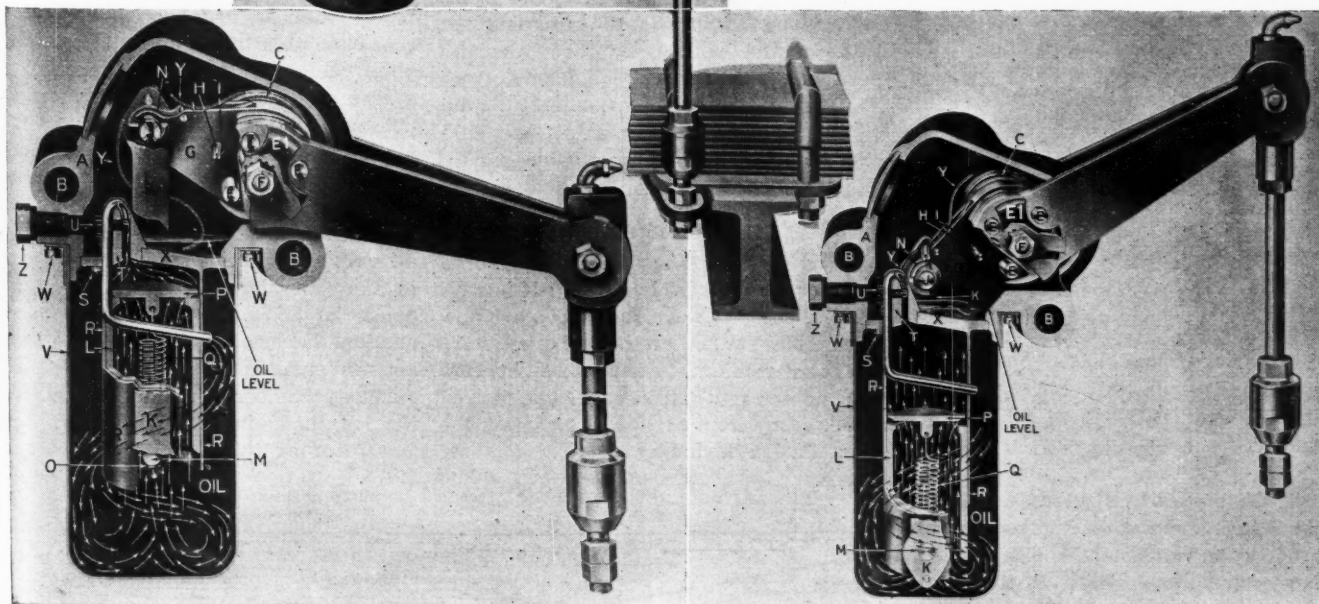
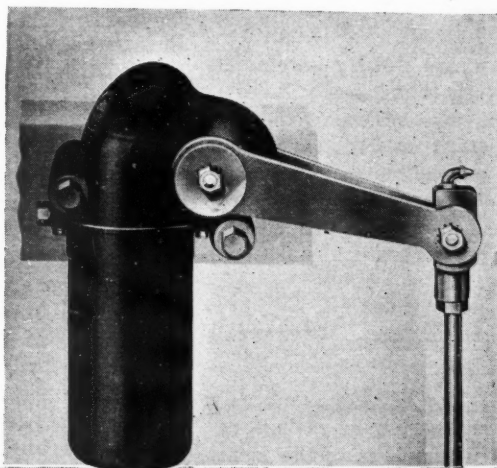
All external parts are Parkerized and then lacquered. Bearing surfaces are designed to automati-

cally compensate for wear in addition to being thoroughly lubricated. To insure against oil leakage, the oil level is well below the operating arm journal, and the steel oil container is carefully machined to insure a tight fit and is installed with an oil resisting cement.

Another feature is the large oil reservoir which has six times the volume of the piston displacement. There is no reversal in the direction of oil flow as the design of the by-pass nozzle, and the piston with its large valve, is such that the oil always travels in the same direction. The flow is rapid, ridding the radiator of any heat which may be generated. This latter action of heat dissipation is also facilitated by the thin walls of the steel oil container. The oil, in addition to being the diffusing agent, lubricates all bearing surfaces within the device. The bearings which are not actually submerged in the lubricant are fed with wicking which dips into the reservoir. The lower universal joint in the rigid connecting link is packed with lubricant at the factory, while the upper joint is provided with a pressure fitting. As stated before, any wear which may occur is automatically compensated for in the design. For instance, coil springs are placed behind the bronze bearing surfaces in the universal joints and any wear is taken up by the expansion of the spring. The crank journal spring N and the piston journal spring O have similar purposes in that they compensate for wear in crank journal J and the piston N respectively. Similar provision is made on the other bearing surfaces.

(Continued on page 42)

Right: View of new Landis shock diffuser. Below: Sectional views of shock diffuser

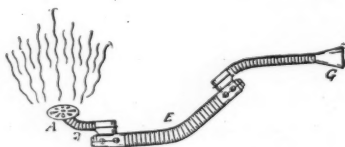


The Latest in Accessories

Car Heater

THIS heater is made by the Wahl Company, 1800 Roscoe Street, Chicago, Ill.

In the Wahl Universal heater there is no connection whatever with the exhaust manifold so carbon monoxide gas cannot possibly enter the car. Air is drawn in directly through the radiator into funnel and the heat of the



exhaust pipe warms this flow and delivers it by the tube to the body of the car through circular register every 3 to 4 minutes.

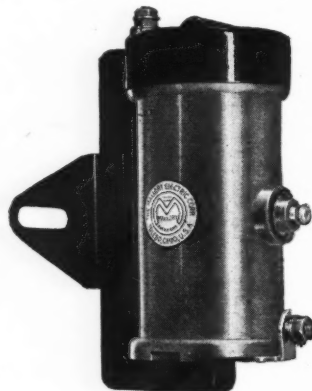
This addition to the heater field is simple in design and sturdily built. Two sizes fit all cars.

Ball Bearing Service

A BOOKLET covering the mounting and care of ball bearings in automotive service has been brought out and is being issued by the Fafnir Bearing Co., New Britain, Conn. While brief, this publication covers in an interesting and practical way all phases of bearing care and installation. Copies may be had free for the asking.

Mallory Automatic Coil

THE Mallory Automatic Coil serves the purpose of two coils, one for starting and one for running. This



coil automatically changes as soon as the starting motor is engaged so as to produce an extremely hot spark from the low voltage and as the engine starts, it changes automatically to

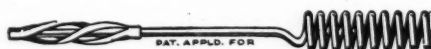
operate from a higher voltage when the generator is charging. The price is \$8.50. It is made by the Mallory Electric Corporation, Toledo, Ohio.

Ford Tire Lock

A HEAVY brass lock with shackles, especially made to attach to the locking bolt of the Ford spare tire and equipped with a heavy chain, is an addition to the line of the Reese Padlock Co., Lancaster, Pa. The chain is a No. 2-0 twist link, 28 in. long, and covered to protect the wheel from damage and to prevent noise. By the use of this device, both the tire and wheel are securely locked to the car. The size of the lock is 2 in. Each lock and chain is packed in an attractive carton that makes an excellent display for the dealer's accessory counter or shelf.

Valve Guide Cleaner

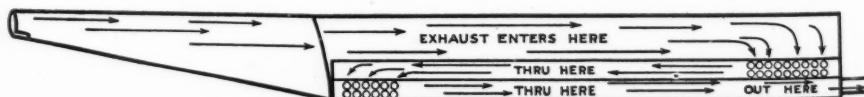
AN entirely new tool for automobile repair work is the Scully Ruggles Perfection Valve Stem Guide Cleaner. The Scully Cleaner cuts the carbon out and will not cut the metal. The spiral blades are self-sharpening. No turning is required to operate this cleaner as it is simply worked up and down



by hand. The long shearing cut gets under the worst coating of carbon, removing all of it and leaving the metal clean and bright without changing the size of the hole. Only three cleaners are required for all diameters from 5/16 to 3/8 inches. It is made by Scully Steel & Iron Company, P. O. Box 814, 2365 So. Ashland Avenue, Chicago, Ill.

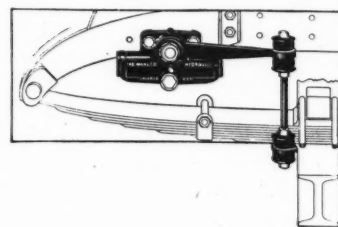
Brake Boosters

THE B-K Vacuum Safety-Servo brakes made by Bragg-Kliesrath Corp., Long Island City, N. Y., are now available for a number of the more popular medium to heavy weight cars on the market. These sets come packed with every item needed to complete the installation including detailed instructions.



Hydraulic Shock Absorber

THE Wahl Company, 1800 Roscoe Street, Chicago, Ill., announces a two-way hydraulic shock absorber. The Wahl two-way hydraulic shock absorber is easily adjustable to the resistance of any particular springs. Wahl tie-rod and live-rubber universal joints



are used on the hydraulic as well as on the two-way Spring Brake. This connection requires no adjustment or lubrication. A specially-developed, extremely low "cold test" oil is used in the new Wahl Two-Way Hydraulic Shock Absorber.

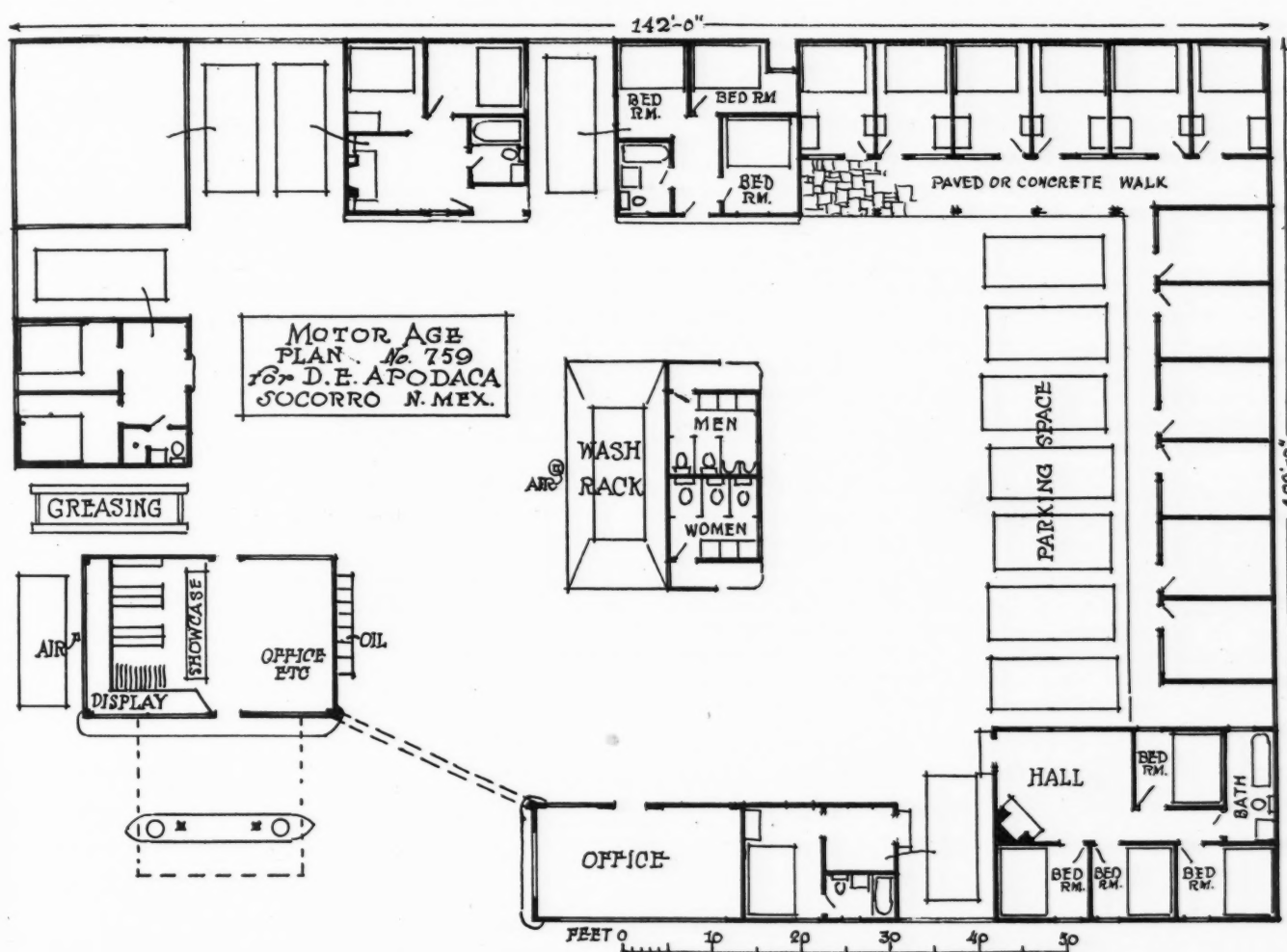
Universal Muffler

GOEERLICH'S new muffler, a product of Goerlich's, Toledo, Ohio, is unique in several ways. The first is that it is universal, one model being made in two sizes and fitting all cars and trucks. Another point of difference is in the size of the first expansion chamber as will be seen in the illustration. Into this chamber the hot exhaust gases are passed and are said to be more completely broken up and cooled than is usual, with the result that back pressure is reduced to a minimum and unusual silence results. A glance at the illustration will show the passage of gas through this muffler and explain the reason for its efficiency. Model "1" has an exhaust chamber diameter of 4 in. and a length of 47 1/2 in. with tail pipe. It is adapted to all cars and trucks from Ford to cars in the Chrysler "80" class. The list price is \$6.75. The Model "2" is adapted to cars larger than the Chrysler "80" and heavy duty trucks. The exhaust chamber diameter is 4 in. and the length 59 in. with tail pipe. The list price of this muffler is given as \$9.75.

A Filling Station—PLUS

Hotels Run Garages for Their Customers—Why Shouldn't a Garage Run a Hotel?

By Tom Wilder



This man has a good idea and, better still, a good-sized piece of property on which to put his idea into practice

"I AM contemplating building a camp ground on a lot with a frontage of 142 feet and a depth of 100 feet, on a corner lot. On this lot I want to put a filling station at the corner and build 10 cabins with individual places for putting in cars, that is, a double cabin with opening between for parking cars. In the center of the lot I want to put rest rooms and shower baths. I want to build them with what we call here adobe brick, size 8 x 12, and partition inside with lath and plaster, these cabins to be built in Spanish style architecture.

"The main traffic street is on the west side and on the north side the street is not used very much at the present time, but will be as soon as this lot is filled. This property is in the built-up section of the town about two blocks from the Post Office, which is in the main part of the town."

—D. E. Apodaca, Socorro, N. Mex.

WHILE this proposition is not exactly the problem of an automotive dealer, automotive dealers overlap in so many directions with other lines nowa-

days, that it is hard to draw a definite line.

One meets the filling-station camp-ground in so many phases and in such increasing numbers that it simply must be recognized as a branch and a decided factor in the sale of automotive goods and service. It is a sort of two-way contact. The filling station brings the customer into contact with the camping or lodging accommodations and the customer while staying overnight, takes the opportunity to have his car washed, greased, or a spare tire repaired while he is resting; the washing, at least, being something that he would not have bought otherwise. Oil changing is another service a tourist is apt to put off to a more opportune time such as this.

With the above preamble, we will go ahead and de-
(Turn to page 42, please)

Answers to Legal Queries

By S. BOYER DAVIS

Was It a Corporation?

On March 26-28 I sent to a jobber a check for \$25.57 for goods. The check was cashed but I never received the goods, nor were my letters answered that I sent to them then. But I heard from outside sources that they went bankrupt. Later I sent a C.O.D. order in and received the goods O.K. On 609027 I sent them a check of \$54.38 for goods and stopped payment on it at once at bank. They sent me \$35.88 value of goods and a check for \$18.50. I returned to them their check for \$18.50 and sent to them my personal check of \$10.41. They now claim that the old concern went bankrupt and that they started up a new concern on 4-20.

Would like your advice as to what to do. Would you please find out for me who the officers were in the old concern and if they are in the new concern. If they are the same would you advise me to pay again?—Minard Van Haitmsa, Falmouth, Mich.

THE whole question turns on whether the equipment company is or was a corporation. If so, then the officers are not personally liable for the debts of the company. If, however, the concern was a partnership or association of individuals, then the members of such partnership or association would be liable individually and collectively for the debts.

This department has no means of ascertaining for you who were the officers of the company, nor whether it was a corporation or not.

If you were to ignore their demand for the balance which you deducted and they put the matter in the hands of their attorney, as they threaten to do, the whole situation could be developed and the facts ascertained.

What's Your Answer?

We sold a man a car and took a bill of sale on his Ford truck as a down payment on it. This man gave a very good financial statement but evidently lied, as he never made a payment on the car, which the finance company repossessed. We sold this truck back to him on a conditional sales note, copy of which I enclose. He made us several payments on the truck and then defaulted. The note was filed Dec. 30, 1927. He had bought the truck from a garage in Hammond, N. Y., and there had been a note on it, but we ascertained that this had been settled in full.

We recently went to repossess this truck and the garage at Hammond had it in its possession. We went ahead and sold the car according to the provisions of the law, whereupon the garage replevined it. The following reasons were given: He renewed the mortgage on the truck which we say he cannot do; he filed a note in March on the truck for security on a radio and other things. The motor number as it appears on our note is wrong. There is one digit too many in the figure, making the number appear to be one-hundred and forty-four million. The number was taken from his

license, and the present license has the same motor number on it. We maintain that as this is the only truck the man had, the description is accurate enough, especially as the license number is the same as on our note.

Also that the fact that the garage has filed a note against the car later than ours proves that they no longer had any claim against it. Also that they cannot renew a mortgage after it has been settled but must make out a new one.

They will have to sue us on the replevin, and it seems to me that if we can get unbiased judgment on the matter without going to court about it, it will save both of us bother and money. If you can give us your opinion we will greatly appreciate it. By the way, they claim that since we did not transfer the license it would indicate that we did not really have possession of the car. We would not be likely to transfer a license to ourselves and then back to the other party, particularly on the 30th of December.—De Graff Bros., Gouverneur, N. Y.

THERE are so many questions of fact entering into your transactions in regard to this car that it is difficult to give you a satisfactory answer.

Since proceedings have been begun, it would seem more conclusive to allow them to proceed and have the various questions of fact settled and the right of the various parties established.

Your opponent would hardly be willing to surrender the car to you because an outsider gave it as his opinion that you were entitled to possession of the machine on a statement of fact with which he might possibly not concur.

An Oral Contract

As a subscriber, would like to avail myself of your advice on the following, which is, I suppose, very elementary law but am not too clear on the rights of the various parties.

A buys his garage equipment of B, giving his cash in part and assumes the balance of an incomplete contract with C. To indicate the business acumen shown all through this deal, might say that no written agreement was made among the parties as to how or when this balance was to be taken care of. Some four years pass, A making payments to C, as if and when he can. Then C without notice to A puts the matter in the hands of a lawyer for immediate collection. The question arises, can A remove from the premises, such equipment as he has bought and paid for, assuming that such action is contested by C or his agents? Or can C or his agents hold everything on the premises pending satisfaction of the contract.

This inquiry will come to you Air Mail, with stamps enclosed for return of your answer by the same. As several things hinge on this point, your prompt reply will be doubly welcome.—S. V. Noble, West End Garage, 883 West Second St., Pomona, Cal.

THE contract or agreement being an oral one, the conditions would have to be proved by the oral evidence of the parties.

In the absence of any arrangement to the contrary, if money was paid as the purchase price of any specific article or articles, such article or articles would become the property of the purchaser; that is, title would pass at once, and such property could be removed at any time at the option of the owner.

If, on the other hand, the money paid was on account generally of the price of the equipment as a whole, title would not pass unless such was the intent of the parties.

The whole evidence as to the agreement would have to be furnished and studied before any useful conclusions could be arrived at as to the rights of the parties.

It Looks a Bit Dubious

I desire a bit of information regarding a company in Chicago, namely: National Stations, Inc., Rand-McNally Building, Chicago.

A representative of National Stations called on me a few months ago and signed me up for the following:

A life membership in the A. A. A. My garage listed an official A. A. A. Garage, and authorizing service to all members of the same; to furnish sign for wrecker and garage, A. A. A. signs; to furnish maps and guide books of all trails and to list my garage in all books and trail maps. I paid him \$14 and was to pay \$15 more on maps, signs, etc., upon arrival. I feel that I have been gypped on this deal and would like for you to investigate this company. I refused the map which came C. O. D. and the station agent hasn't heard from them.

I wrote the Chicago Motor Club and they say that National Stations are in no way connected with the A. A. A. and any claims made thereto are fraudulent.

I am enclosing one of their letter-heads for your inspection. If I cannot get any redress in the matter, maybe you can keep the other boys from getting burnt by advertising this outfit.—C. B. Kemble, East End Garage, Bowen, Illinois.

WE do not know of the company as to which you inquire.

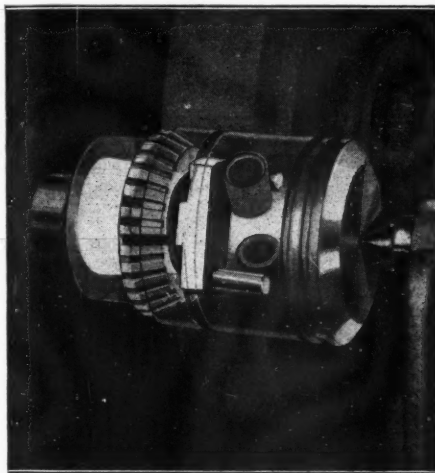
The Chicago Motor Club undoubtedly knows whether this concern is connected with the American Automobile Association, and of course the latter will tell you definitely whether or not they have any such connection. It does not look as though they were very responsible people.

In several recent issues MOTOR AGE published articles dealing with fraudulent schemes, rackets and grafts that make the unwary dealer's life a nightmare. The author of the articles was C. W. Coons, secretary-manager of the Illinois Automotive Trade Association, Peoria, Ill. This association is very alert and is furnishing its members a protective service.

Useful Shop Equipment

Piston Turning Equipment

OF great value to piston turners and grinders are the Dall quick-change adapters. These are designed for use in lathes and grinders and furnish a ready means of holding any piston up to 5¼ in. in diameter. A set of 11 adapters covers the entire piston field of iron, alloy and strut type pistons up to and including that diameter. Their design is such as to allow the grinding wheel or cutter to pass entirely over the work, thereby insuring absolute ac-



curacy the full length of the piston. No wrenches, bolts, nuts, clamps or screws are required to use this adapter. A mere twist of the wrist completes the operation. As will be seen, the adapter enters the piston on the interior of the skirt and drives it by the piston pin bosses. These adapters are among the products made by The Dall Motor Parts Co., P. O. Station D, Cleveland, O.

New Parts Storage System

NEW auto parts storage systems for De Soto cars have just been placed on the market by David Lupton's Sons Company, Detroit.

Separate systems have been designed to carry the parts listed on the De Soto A and the B parts list. When developing these two systems care was taken to allow ample surplus space to provide for the dealers' future growth. Thus each system will carry a greater list value of parts than shown on each standard parts list.

Each LAPS System for De Soto parts is shipped complete with steel storage units, parts index board, gasket board and end irons for long parts. Carefully worked out instructions for

the proper storage of parts are included so that the parts man knows exactly in which bin each part goes.

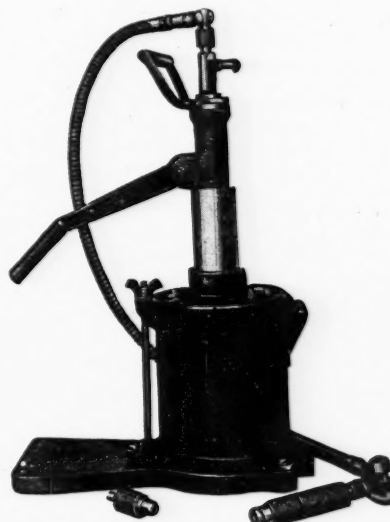
The parts index board is included to facilitate stock-keeping. This index board contains space for listing the name of each part, the number of each part, the location of each part as to the unit, the shelf and the bin, the maximum number of each part to be carried in stock, and the minimum quantity to be carried. After listing these parts on the board, the dealer has an accurate system for locating parts and a complete steel bin system and stock-keeping record.

Future changes in car models, resulting in a different selection of parts, may call for relocating the bin dividers. Since all dividers in LAPS Systems are securely fastened by a newly devised, button-like fastener known as "Movit," a divider may be changed in a few seconds.

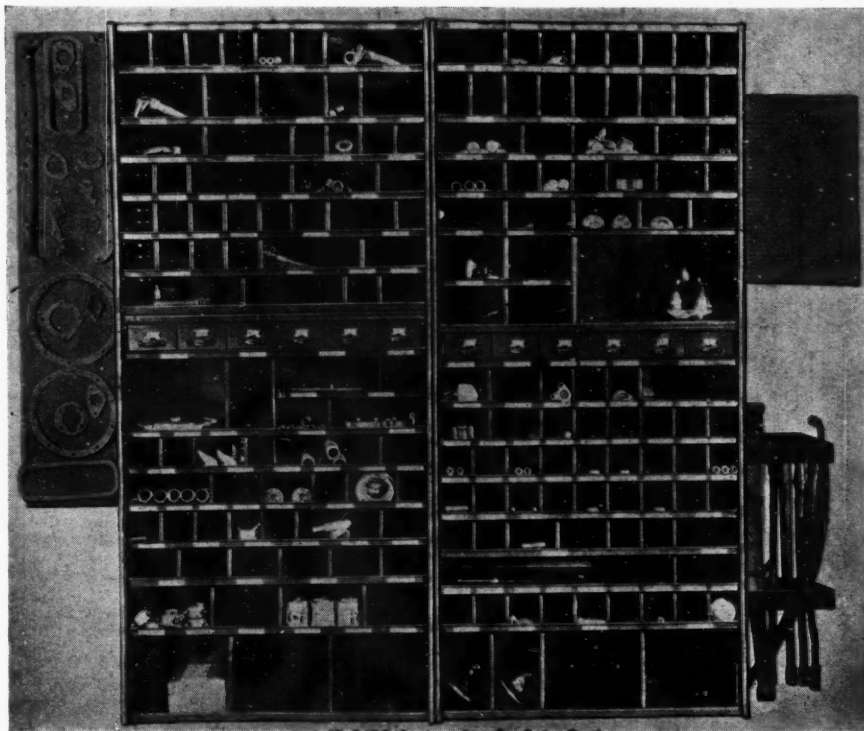
High Pressure Lubricator

A HIGH-PRESSURE chassis lubricator, known as Little Giant, is one of the latest products of the Dot Lubrication Division, Car Fastener Co., Cambridge, Mass. This is a 5-pound capacity, one-man operated grease

pump. It is said that this will develop up to 10,000 lb. pressure at the nozzle. It weighs but 23 lb. when filled. It is equipped with genuine Alemite and Dot nozzles. The price, which is \$47.50, is



quite as attractive as the unit itself. It is light and easy to handle and has no complicated parts. It is small enough to stand upright under the average car or truck. The entire pump unit swivels in the grease tank so that the handle may be worked from any direction.



LESS THAN \$ 3 , 0 0 0 A YEAR

(Continued from page 23)

number of ways, no one of which is definitely in the ascendancy.

A straight commission basis with or without drawing accounts appears to be still the most favored by dealers, although not by the factories. Usually 5 per cent on the price net is paid; occasionally the f.o.b. price is the basis. A few dealers base the commission on the cash involved, i.e., the trade-in is deducted. This is generally disfavored on the ground that it is illogical and unfair, since the trade-in should be the equivalent of cash; and that it induces the salesman to devote a disproportionate amount of his efforts to closing deals involving trade-ins of small value, whereas experience has shown that the dealer is much more apt to lose in money and good will on such vehicles than on up-to-date models in good condition.

In addition to straight commissions, the other important type of compensation is salary plus commission or bonus on sales. This is the plan now most favored by the factories, and for a number of reasons, some of which are involved in a criticism of the commission method.

Straight commissions tend to involve devastating variations in weekly or monthly earnings and they tend to give the salesman the feeling that he is working principally for himself. Such men are likely to resent attempts at control and guidance in the best in-

terests of the dealer. There is also the temptation to hire more men than are needed for the territory—though this is not a point that is pressed by the factories, which are inclined to urge dealers to expand their sales forces.

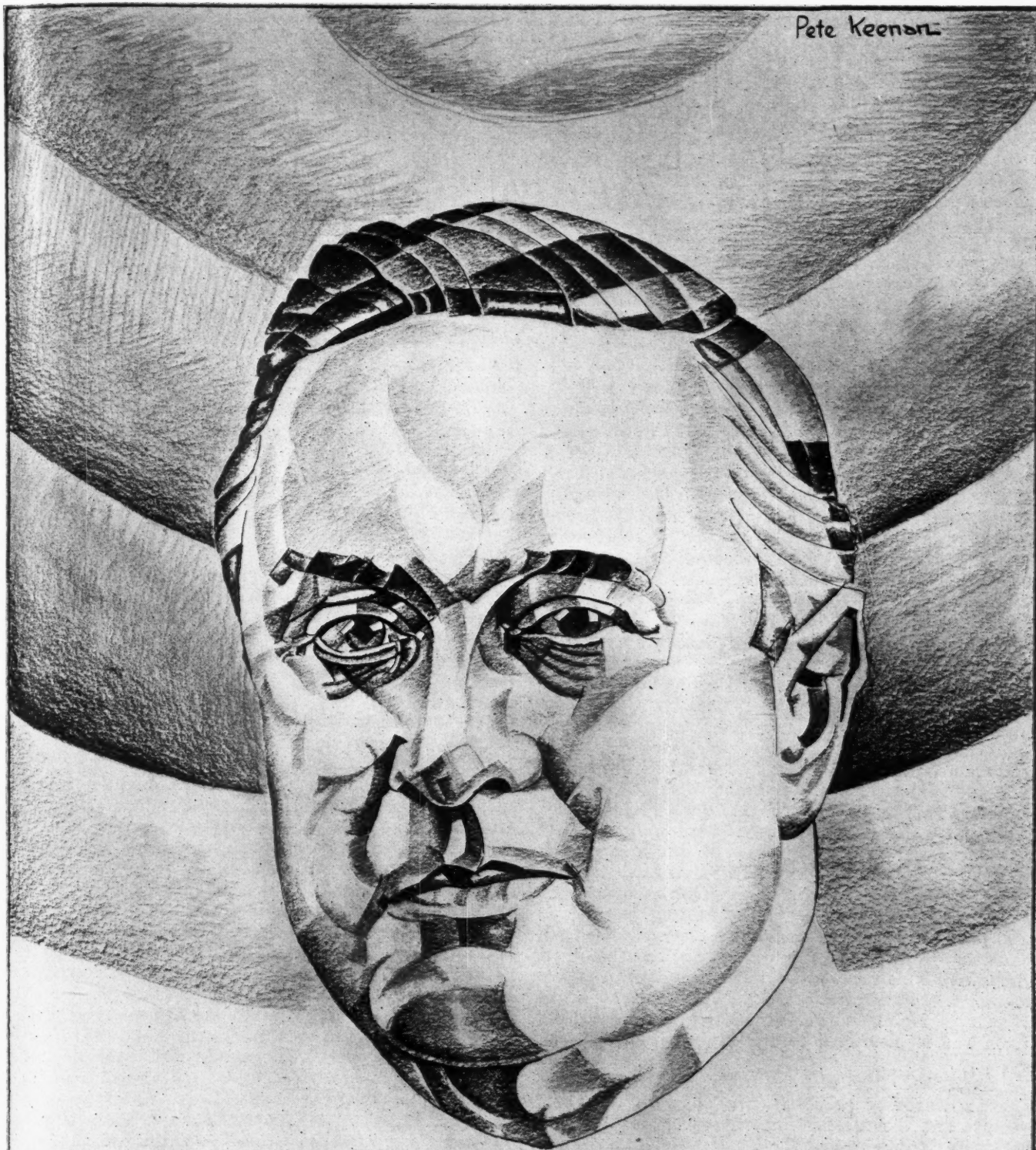
The salary plus commission or bonus system is held to meet the criticisms of the straight commission plan. It offers stimulation to the salesman, tends to stabilize earnings, yet permits closer relations between employer and sales representative. It is true that many of the very best salesmen are perfectly satisfied with a straight commission and would not willingly accept another basis unless they can be shown an equal chance for high compensation. This is a matter of how the plan is adjusted.

A very moderate salary is usually recommended—just for a bare living, so that the salesman is dependent on his efforts for the comforts of life. It is also held that if bonuses rather than commissions are paid in addition to salaries, the payments should be frequent enough so that the salesman will not become discouraged waiting for his additional remuneration.

Plans of this character are of course not new in the industry, and their success, as has been amply demonstrated, is largely dependent on the competence of the management. Education of the dealer along these lines is the big task of the factories today.



SALES representatives of the Flint zone, Chevrolet Motor Co., who were in Flint attending conferences called by C. L. Garner, zone sales manager. Those in the above picture are, left to right, top row: W. S. Madigan, sales promotion manager, Flint; A. F. Pate, sales representative, Saginaw; R. J. Frink, representative, Port Huron; R. K. Hurd, representative, Petoskey; Will Power, representative, Bay City; W. P. Church, representative, Grand Rapids; C. P. Dunsmore, car distributor, Flint; M. S. Suydam, representative, Flint. Bottom row: P. B. Kimnell, representative, Lansing; J. O. Peet, representative, Muskegon; C. L. Garner, sales manager, Flint zone; D. C. Barnett, assistant sales manager, Flint zone; F. L. Carpenter, representative, South Bend, Ind.; G. D. Slaymaker, representative, Jackson



A MOTOR AGE IMPRESSION = T.S. JOHNSTON
Assistant to W.C. Durant
Durant Motors Inc.

B. K. Booster Brake Adds *New* Models

*Improvements Simplify Installation and Service;
Also Provide Greater Adaptability*

TWO new models of the B-K booster brake have been placed on the market and are illustrated herewith. One of them has a 2:1 internal reduction incorporated in it and is applicable to both two-wheel and four-wheel brakes. The reason for fitting the booster with a 2:1 reduction is briefly as follows: In order to get all the braking power needed with a moderate size of vacuum cylinder, a considerable reduction of motion is required between the vacuum cylinder piston and the brake lever. Ordinarily this reduction is obtained by means of the regular brake linkage or hook-up, but in passenger cars it is not always convenient to obtain the necessary large reduction, besides which a large reduction linkage tends to clutter up the chassis. Therefore, a 2:1 reduction is combined with the vacuum cylinder and is completely enclosed.

In the original B-K booster for two-wheel brakes the valve mechanism was incorporated with the vacuum cylinder. This results in a construction of considerable length, for which it is not always possible to find room on the chassis. For this reason a design has been evolved in which a separate valve, similar to the one used in connection with the four-wheel brake booster, is employed. The valve is of the floating type, a rod from the brake pedal entering it at one end and a rod connecting to the brake rigging leaving it at the other. When there is no vacuum the pedal effort is transmitted through the valve directly to the brakes. The brake cylinder is rigidly supported on the chassis and its piston rod is connected to the brake rigging in the usual way.

A desirable characteristic of this system is that there is some degree of proportionality between the pedal pressure and the force of brake application. Assume that the driver depresses the brake pedal to a certain point and stops there. Then, communication between

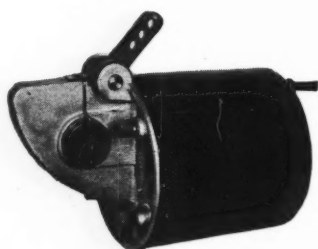
the inlet manifold and the brake cylinder being established, air will be drawn out of the brake cylinder and the cylinder set in motion to apply the rear brakes. But as the valve chamber is incorporated directly in the linkage of the rear brakes, when these are applied the valve housing moves, with the result that when the tension on the brakes has reached a certain value, the valve seat comes up to the diaphragm and shuts off communication between the inlet manifold and the brake cylinder. The vacuum being held in the cylinder at the value reached at that moment.

Consequently to each position of the brake pedal there is a corresponding degree of vacuum in the brake cylinder and a definite tension in the linkage of the rear wheel brakes.

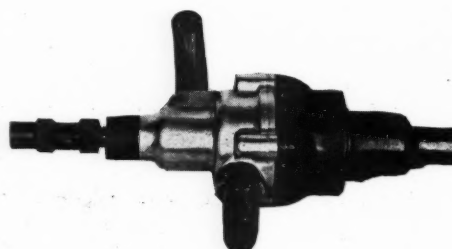
One of the advantages of this brake is that it automatically proportions the force of brake application between the front and the rear brakes. Wear of the brake lining is automatically compensated for by the piston moving further into the brake cylinder. Another feature of the B-K system is the separate regulating device which goes on the dash and serves to regulate the limiting braking force available for different conditions of road surface, such as dry, wet or icy. By moving the indicator of this device from one position to another, the degree of vacuum which can be reached in the brake cylinder is varied, the maximum vacuum corresponding to the dry and the minimum to the icy road surface.

The new B-K vacuum servo mechanism may be installed on any type of braking system, and units suitable for the various makes of cars are now available from the manufacturer.

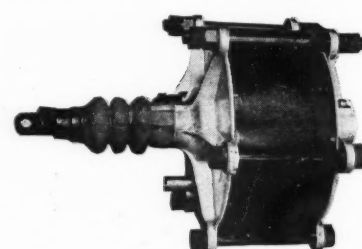
These new products of the Bragg-Kliesrath Corp., Long Island City, N. Y., were shown to the public for the first time at the American Electric Railway Association show in Cleveland.



Type F. W.
F-W booster cylinder with 2:1 enclosed reduction



Type X T 1/2 Valve
Vacuum valve for use with the P. B. L. cylinder



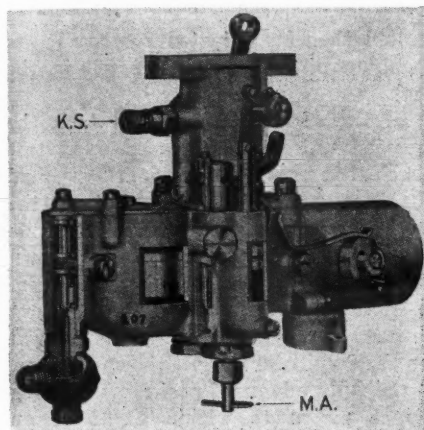
Type P. B. L.
P. B. L. booster cylinder, which is shorter than the usual design

READERS' CLEARING HOUSE

Questions Answered By C. Edward Packer

Adjusting Whippet Carburetor

I would like to have information on the adjustment of the Tillotson carburetor used on the Whippet 6, Model 98. We do not seem to get any mileage for a car of that size and weight, 12 to 14 miles being the best we can get per gallon. If you will furnish me with the necessary information for adjusting this carburetor, I will appreciate it very much.—Western Reader.



OF course, you appreciate that the mileage per gallon varies greatly in the manner in which the car is driven. Driving the car hard, of course, results in fewer miles per gallon. If you feel that the fault lies in the carburetor, proceed as follows to make adjustments:

First—Close main adjusting needle "MA" by turning to the right or up until the needle is seated (never force tightly against the seat), then open by turning to the left or down two complete turns.

Second—Close the by-pass or low speed adjusting needle "KS" until it is seated by turning to the right or in, then open by turning to the left or out one-half turn. Thus adjusted, the engine should start and operate.

Third—Set throttle lever on steering column to operate engine at a speed equivalent to 25 miles per hour car speed (never race engine while running idle). Start engine and run until thoroughly warm.

Fourth—Retard the spark control fully. With the engine running idle, approximately 25 miles per hour car speed, gradually turn the main adjusting needle "MA" to the right or up to a point where the engine slows down for the want of fuel. When this

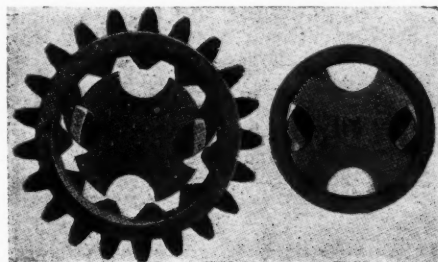
point is reached, stop and gradually turn in the reverse direction until that position is found where engine runs free. This adjustment should be carefully made, for gasoline economy cannot be obtained if the needle is allowed to pass over the point of sufficient fuel delivery to give good power and free running.

Fifth—Close the throttle fully and with the spark fully retarded, set throttle lever stop screw to run engine faster than is desired for normal idling speed. Now turn low speed adjusting needle gradually to the left or out, thinning the mixture, until a noticeable flutter or missing occurs. At this point turn in the reverse direction only to that position where the engine again fires evenly. Leave this adjustment at the position delivering just as thin a mixture as will properly idle the engine. Now carefully adjust the throttle lever stop screw to operate the engine at the desired idling speed.

Chandler Transmission

Will you please tell me in detail just how the traffic transmission, that was used on Chandler cars, operated?—Laurence Calbrese, Box 9, Glendine, Montana.

THE traffic transmission as used on the Chandler cars in 1924 did away with the necessity for sliding gears into mesh laterally and effected gear



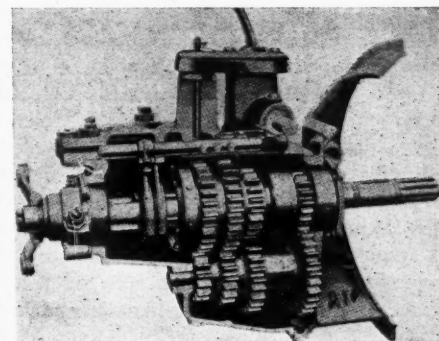
changes by means of a system of sliding keys. The general arrangement of the gear shaft was substantially the same as in the conventional form of gearset. That is, there was a primary shaft which connected to the clutch and which carried what is generally referred to as a constant mesh pinion, which latter runs together with the constant mesh gear on the secondary shaft. In line with the primary shaft was the third motion shaft which could be locked to the primary shaft by means of a positive clutch of the internal and spur gear type for the direct

drive. The secondary shaft, in addition to the constant mesh gear, carried pinions for the intermediate and low speeds and for the reverse. These pinions remained constantly in mesh with corresponding gears on the third motion shaft which gears normally turned free on that shaft. It was in the keys used for making fast the gears to the third motion shaft that the chief novelty of the design lay.

All of the gears were mounted on collars or rings which acted as supporting bearings. The gears were locked to the shaft by means of sliding keys which could be moved endwise through the semi-circular groove in the shaft until they were under the ring corresponding to the gear that was to be engaged. When the keys had reached this position they were automatically rotated around their longitudinal axis and the lugs on them engaged with teeth which were formed on the inside of the gears. When in the neutral position the keys lay wholly within the grooves in the shaft, the lugs on the keys then being depressed under the bearing from which the gears revolved. When the keys were shifted the lugs cleared these rings. When the keys were being withdrawn from engagement the sloping sides of the lugs acted as cams bearing against the beveled edge of the bearing ring, thus depressing the lugs.

Spring plungers bearing against the flat surfaces of the keys pressed them into engagement. As soon as the key started to turn in engagement, the pressure of the gear carried it all the way to its proper position, one of the keys taking the driving stress while the others took up the back lash.

The cutaway view of the entire transmission layout shows how all gears are in-mesh at all times.



[READERS' CLEARING HOUSE]

Checking Gas Mileage

I would appreciate it very much if you would inform me if I can find out gasoline consumption of a car by disconnecting the vacuum from the main pipe of the gasoline tank and if there would be any irregularity in the performance of the engine by such a disconnection. I also wish to know if any air goes in or out of the vacuum tank through the pipe which connects the main line to the gasoline tank.—Felipe Agrelot.

IN making your test, you would do well to plug the line from the vacuum tank to the manifold to prevent irregular operation at low speed. That is, just disconnect this line and put a piece of tape over the end of it. No air ever enters the gas line that connects the gasoline tank with the vacuum tank unless the gasoline tank runs dry. In making your test, disconnect the gasoline tank to vacuum tank line at the vacuum tank. Remove and tape the line that connects the vacuum tank to the manifold. Run your engine until it has run out of gasoline and stopped of its own accord. Then place one quart (carefully measured) of gasoline in the vacuum tank. If you are seeking maximum mileage, operate your car at a speed of 25 to 28 m.p.h. on a level road, free of traffic. To compensate for wind interference, it would be well to make two runs, one with the wind and one against it. Of course, your efforts will be no more accurate than your speedometer so it is well to test your speedometer on a measured mile as is frequently found on state highways. Naturally the odometer should be set to zero before starting the run. The distance covered multiplied by 4 is your mileage per gallon.

Model A Ford Brake Adjustment

We are having trouble with the brakes on a model "A" Ford coach, engine No. 88948. This car is equipped with the emergency brake lever on the left side. We have followed the instructions given by the Ford Motor Company and also those given in MOTOR AGE some time ago, but have failed to get the brakes to hold the car. The car in question has been driven 3000 miles and the brake lining seems to be good. The equalizer remains in the center and the brake lever stands up and down when the brake is in the off position. We have washed off the brake bands and roughened the lining with a wire brush. The brake rods are not adjustable as on the earlier models. It's the rear brake we can't get to hold. We can drag the front ones if we set them up tight. Any information on this will be appreciated.—Wisconsin Reader.

IT is not intended by the Ford Motor Company that any adjustment shall be made on the levers or rods of the model "A" braking system. To check up on these brakes, jack all wheels

about one inch from the floor, then tighten all brake cams so that all wheels are locked, being sure to have your rear cams a little tighter than the front ones. Then back off the rear cams 6 notches and the front ones 8. That will give you a little greater clearance in the front than in the back. In other words, your rear wheels should take hold first. Then pulling the emergency lever up to the second notch, your rear wheels should just begin to drag, and the front ones should be free. When the lever is pulled to the third notch, the rear wheels should be locked and the front ones dragging considerably. That is the only means of adjusting or equalizing the brakes and should you find that the rear ones do not take hold quick enough, it will be necessary to turn up on the cams a little.

No Need to Pull Engine

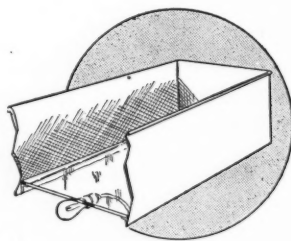
Will the engine in a model 62 Chrysler have to be pulled in order to get at the rear main bearing and the front main bearing?—E. M. Peek, P. O. Box 185, Trilby, Fla.

IT is unnecessary to pull the engine in the Chrysler 62 to get at the front and rear main bearings.

SHOP KINKS

Ideas that have proved useful

HAVING had much difficulty in locating fine leaks in inner tubes, I have constructed a special tube testing tank. This is of the conventional size, but the bottom is made of plate glass. Underneath the glass is an electric bulb and the slightest bubble rising from the tube can be instantly detected.—Fred Salzman, Salzman Bros., Troutdale, Ore.



Readers of MOTOR AGE are invited to submit ideas that they have found useful in doing some particular service job in the shop in a better or quicker way. For each one published \$2.00 will be paid. Whenever possible the idea should be accompanied by a sketch or diagram from which a drawing can be made.

Synchronizing Packard Points

Please explain to me just how to synchronize the breaker points on the 1928 Packard 6 and 8-cylinder cars. Is it done by the flywheel or just how do you use the tool that is supplied for this.—S. E. Archibald, 10 Charlotte Avenue, Bradford, Penna.

THE better way to synchronize these points is to use the Delco-Remy synchronizing tool especially supplied for this purpose. The tool for the 6-cylinder car is designated as No. 820751. The tool for the 8-cylinder car is known as No. 822965. In either case, the tool is put on the breaker shaft in place of the cam. Into one of the notches of the tool the fibre flock of the non-adjustable breaker arm should be firmly placed. The moving arm should then be adjusted so that it fits firmly against the other notch in the tool.

In the absence of such a tool, the ignition unit can be placed on a test bench that uses a rotary spark gap and the breakers so adjusted that on the 6-cylinder job they open at intervals of exactly 60 deg. of distributor travel and on the 8-cylinder job at 45 deg. of distributor travel. The flywheel can be used for synchronizing as follows: On the 8-cylinder car set the spark lever in the fully advanced position and bring No. 1 piston to within 21/32 of an inch of top dead center of the compression stroke as measured on the flywheel. Then adjust the front breaker point so that it is just opening. Then repeat this operation, using No. 7 piston, and have the rear breaker point just opening. For the 6, proceed in the same manner, but make the timing on No. 1 for the front breaker point and No. 5 for the rear breaker point.

Killing a Squeak

I have a 24-48 Master Buick that squeaks under the upholstery in the top. It was some time ago that the trouble started. Then I found the body bolts loose. Tightening them did not overcome the trouble. This seems to be in the left front corner. I thought of putting shims under the front corner, or of putting braces in the top and will appreciate any advice that you could give me as to which will be the best way of silencing this noise.—N. H. Vanstavern, Sinks Grove, W. Va.

THE corner that is squeaking in your car is constructed with a dove-tailed joint. Through this joint a bolt extends from top to bottom. The only way you could gain access to it would be by removing the roof covering, and even then there is a danger that the bolt would turn and you would not be able to draw the joint up tight. Consequently, the most logical method of tightening this corner is to use a heavy corner iron screwed into place.

[READERS' CLEARING HOUSE]

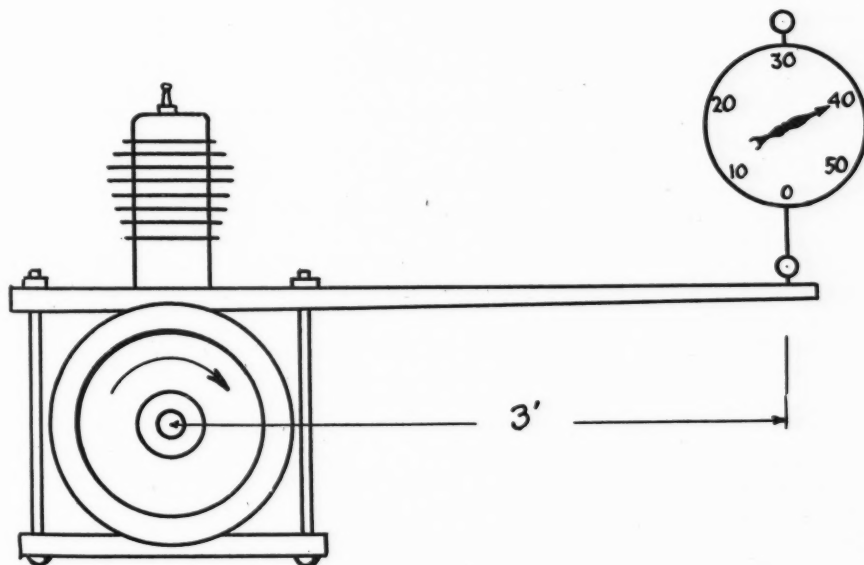
Meaning of Brake Horsepower

What is the meaning of brake horsepower at specified speed? In *MOTOR AGE* a 1928 Graham-Paige, 8-cylinder, Model 835, shows the maximum brake horsepower as being 123 at 3200 r.p.m. Does that mean 123 miles per hour at 3200 r.p.m.?—R. Tehan, 102 Myrtle Street, Medford, Mass.

THE figures given refer only to engine performance and not to car speed. What they mean is that the engine is capable of developing 123 brake horsepower at 3200 revolutions per minute. To make this a little clearer, we are showing a diagram which will illustrate how horsepower is figured. Actually, however, the friction between the flywheel and arm would be so great as to burn up the arm, but the principle is brought out in the sketch. The formula for horsepower is

$$\frac{2 \times 3.1416 \times R \times F \times N}{33,000}$$

What you actually get here in multiplying $2 \times 3.1416 \times R$, or the radius, is the circumference or distance through which the force is acting. For the letter F you should substitute the force in pounds as shown on the scale,



and for this letter N in the formula substitute the number of revolutions per minute that the engine is turning out. Now with the diagram we are using, let us assume that the engine is exerting a 40 lb. force at the end of a 3 ft. arm and is turning at 500 r.p.m. You will find that the circumference or distance through which the force is acting is 18.849 ft., for the force in pounds is 40, giving us 753.98 ft. pounds. Multiplying this by 500, the number of revolutions per minute,

gives us 376,992 ft. lbs. per minute. As 33,000 ft. lbs. per minute equals one hp., we divide 376,992 ft. lbs. by 33,000 and find that the engine is developing 11.4 brake horsepower.

Another Hot One

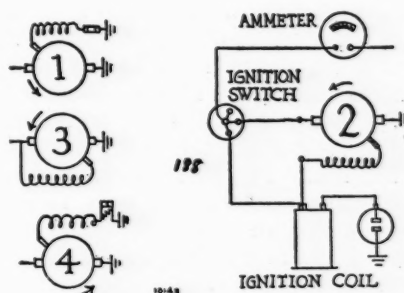
We have a late 1925 Hudson Super Six that overheats and boils water at 35 miles per hour or more. We installed a new replacement core on this car. We have cleaned this out with lye and radiator compound and have also cleaned out the engine, but with no improvement. Have installed conduit in the radiator hose to prevent it from collapsing. I have also checked the water pump and the circulation is free. The timing and ignition are perfect. Please let me know what might be causing this car to overheat.—L. J. Schultze, Schultze Machine Shop, Chenoa, Ill.

OVERHEATING in some of these cars is caused by a very hard deposit which forms in the radiator core and which no solution could dislodge. Installing a core of greater cooling area *might* be effectual in overcoming boiling, provided the core did not offer too much resistance to circulation. Some cores in order to get extreme area have such restricted water passages that they are not suitable for use on all engines. You

Third Brush Machines Only Look Different

In some third brush generators one end of the shunt field is connected to the third brush and the other end is connected through a fuse to ground. I understand this perfectly, but why is it that on some other makes of third brush generators the shunt field is connected to the third brush and the other end to the ignition coil? On still other generators the shunt field is connected to the main positive brush and the other end to the third brush, while on the Remy generator which has thermostatic control the field is connected to the third brush and the other end is connected through the thermostat to ground.—Wisconsin Subscriber.

THE four different cases you point out employ the same principle of



Four third brush generators, all checking with the rule for field connections

connection but appear different. In order to get regulation by the third brush method, it is necessary to connect from a main brush to the following third brush tracing in the direction of armature rotation. We have made four sketches to illustrate the four circuits you have referred to. In each case we will assume that the armature is turning left hand or counter-clockwise. In the No. 1 sketch we have the fuse grounded and one of the main brushes grounded. In this way the shunt winding is connected to the grounded main brush.

The No. 1 circuit then conforms with the rule, for in tracing around to the left from the grounded main brush we come to the third brush, which is the other connection of the field winding. The No. 2 circuit appears more complicated because the connection from the live armature brush to the field winding is made through the lighting switch. This is merely a matter of engineering preference so as to open the shunt field circuit when the operation of the switch turns off the ignition. In this case the ignition switch is also serving as a cut-out. No. 3 is just a variation from No. 1, the fuse being omitted and the field connection being made on the other side of the armature. No. 4 is similar to No. 1 except the thermostat is used in place of the fuse.

A F I L L I N G S T A T I O N — P L U S

(Continued from page 33)

scribe our layout. A shelter is suggested over the pumps, but rain is rare enough in New Mexico so that this can be eliminated in order to give better display to the arch over the entrance to the inner drive. The store and office building is set back far enough from the side street to give space for an air service fixture of some kind and another air fixture is located inside for those who want to check up on their tires before leaving.

The room and cabin office is located so that cars may drive in and stop in front of it without obstructing the passage and also so that it will command the entrance to make it impossible for guests to slip out in the morning without being seen—not a common occurrence, we hope, but nevertheless worth considering.

In laying out the cabins and rooms, it might be well to use both cabins and single rooms as we have done, for in that way a greater number of combinations can be taken care of. You will note that there is a large suite of four rooms, bath, and living room and from that down to one room with bath. If you are in high altitude where the nights are chilly—we haven't looked it up—the fireplaces would be features to bring a better rental or at least make a more satisfied customer.

The number of cars that must be accommodated when the rooms are full will vary from day to day and it may be that there will be too few parking spaces some days, depending on whether there were a predominance of roadsters or five and seven-passenger cars well loaded. The cars are parked about as close as they

could be to permit handling luggage, etc., but when necessary the wash rack would hold cars and three more could be parked parallel with the filling station office facing the grease rack and the two-room suite beside the room office could be eliminated and its space used for two cars or three if a little more space were taken from the office.

There should be some good eating accommodations in the neighborhood if this place is to be a success, and we would suggest that the nature of these eating places determine the nature of the rooms you should build. If there are good, high grade restaurants or tea rooms, your rooms may be as high grade and expensive as you can make them, but if there is nothing but cheap food, and poor places, you must cater to people who patronize such places. You could establish your own dining room but that would complicate your business and unless you are a good executive, would be precarious.

Showers have not been provided for the center building because the necessary dressing rooms would consume considerable space and be a great trial to you. It would be much better to have showers with some of the rooms and let the others go without.

This layout could be executed in adobe brick and stucco in the Spanish style very nicely, the paved walk around two sides with sort of shelter or portico over it and red tile on some of the roofs would make the whole very attractive.

He Sold 258 Cars in Half a Year

(Continued from page 27)

enough used cars to beat my guarantee. It wasn't easy to do. But I guess I learned to plug while I was doing it.

"In 1924 I went out to Mesquite, Tex., and later to Royce City. I worked for automobile dealers in those towns, and sold used cars. Sometimes I catch a new car prospect and sell him, but that is entirely a sideline with me. I had relatives at Mesquite. About three years ago I came back to Dallas and went to work for the Shelton Chevrolet Co. in their used car organization. It was a fine thing for me.

"I'm not kidding about this: A successful used car salesman has to have good used cars to sell. A lot of my business is repeat business. That may mean that I made a good impression on the purchaser who

came back. Probably it does; I try hard enough to make one. But that isn't enough. He took one of our cars, drove it a long way, got to liking it, satisfied himself that it was worth the money, and, when he needed another one he felt sure that he would get a good one from us. Maybe he told several other people who needed or wanted to buy used cars.

"I do this much, however: I follow up all my sales. After I sell a man a car, I make it my business to see him. I try to help him reach a favorable conclusion about that car. I want him to help me sell more used cars. And he does."

Shorty has a secret. He won't tell what his middle initial stands for.

"Just call it 'Lucky,'" he said.

New Landis Shock Diffuser

(Continued from page 31)

During compression movement of the car spring, the operating arms D are raised, which through journal C, crank G and yoke K, in turn pull the aluminum alloy piston L downward in cylinder R, opening valve P on head of piston L, filling cylinder with oil. When the motion is reversed, or recoil starts, valve P closes and piston L moves upward, forces oil through by-pass which is adjusted at the factory to the proper size by means of the screw U so

that the proper time element can be introduced for recoil movement of the car spring to be controlled. The discharge from the by-pass outlet is tangential to inner wall of container V and at a downward angle. The rapid flow of oil from the nozzle causes a whirling motion of the oil as indicated by the arrows, forcing main body of oil upward through center of container end through center of piston L in direction necessary to fill cylinder R when valve P opens.

Prices, Weights and Equipment of Current Passenger Car Models

Important changes in Specifications and Price Tables since last issue:

FORD
Weights

MOON "6-72"
New Sedan

Passengers and Model	F.O.B. Price	Doors	Net Weight*	Standard Equipment	Passengers and Model	F.O.B. Price	Doors	Net Weight*	Standard Equipment	Passengers and Model	F.O.B. Price	Doors	Net Weight*	Standard Equipment
CADILLAC "341" "Fisher"					CUNNINGHAM "V.7"					"55"				
2p. Roadster...	\$3350	2	4690	aeghlmpnx	4p. Sp. Touring...	\$6500	4	4500	Ceghiklmnp	2p. Coupe...	795	2	2395	ah
4p. Phaeton...	3450	4	4725	aeghlmpnx	7p. Touring...	7000	4	4600	Ceghiklmnp	5p. Sedan...	795	2	2385	ah
4p. Sp. Phaeton...	3950	4	...	Beghiklmnp	4p. Coupe...	8000	2	4700	Ceghiklmnp	5p. Brougham...	895	2	2425	ah
7p. Touring...	3450	4	4760	aeghlmpnx	6p. Limousine...	8500	4	5000	Ceghiklmnp	5p. Touring...	795	4	2385	aghamn
2-4p. Coupe...	3295	2	4930	aeghlmpnx						2-4p. Sp. Rdster...	1025	2	2336	Beghkmn
2-4p. Conv. Coupe...	3595	2	4835	aeghlmpnx						2-4p. Collap. Cab...	\$1045	2	2525	aghamn
5p. Coupe...	3595	2	4910	aeghlmpnx						2-4p. Coupe...	975	2	2425	aghamn
5p. Sedan...	3695	4	5040	aeghlmpnx						5p. Sedan...	975	2	2600	aghamn
5p. Town Sedan...	3495	4	5030	aeghlmpnx						5p. Sedan...	1075	4	2675	aghamn
7p. Sedan...	3795	4	5140	aeghlmpnx	DAVIS "99"					5p. Brougham...	1175	4	2695	Beghkmn
7p. Imp. Sedan...	3995	4	5180	aeghlmpnx	4p. Polo Rdster...	\$1795	2	3295	aeghmnr	5p. Sedan...	1385	4	3130	aghamn
"Fleetwood"					5p. Touring...	1795	4	3325	aeghmnrs	5p. Brougham...	1550	4	3180	Beghkmn
5p. Sedan...	\$4195	4	...	aeghlmpnx	4p. Coupe...	1865	2	3345	aeghmnr					
5p. Sedan Cab...	4195	4	...	aeghlmpnx	5p. Emp. Sedan...	1885	4	3475	aeghmnort					
7p. Sedan...	4295	4	...	aeghlmpnx										
7p. Sedan Cab...	4195	4	...	aeghlmpnx										
5p. Imperial...	4345	4	...	aeghlmpnx	DE SOTO					ELCAR				
5p. Imperial Cab...	4345	4	...	aeghlmpnx	2-4p. Roadster...	\$845	2	2635	ghnw	"6-70"				
7p. Imperial...	4345	4	...	aeghlmpnx	5p. Phaeton...	845	4	2445	ghn	4p. Roadster...	\$1295	2	2580	ahnr
5p. Club Cab...	4395	...	...	aeghlmpnx	2-4p. Roadster...	880	2	2390	B	5-7p. Touring...	1295	...	...	ahnr
5p. Phaeton Sed...	5750	...	...	aeghlmpnx	2p. Bus. Coupe...	845	2	2465	ghn	5p. Brougham...	1295	2	2670	ahnr
5p. Imp. Pha. Sed...	5995	...	...	aeghlmpnx	5p. Sedan...	845	2	2580	ghn	5p. Sedan...	1295	4	2750	ahnr
Town Cab Con...	5500	4	...	aeghlmpnx	5p. Sedan...	885	4	2640	ghn	"8-78" Std.				
LimBro'm Con...	5500	4	...	aeghlmpnx						2-4p. Roadster...	1395	2	...	ahnr
CHANDLER					DIANA "St. 8"					5p. Touring...	1395	...	...	ahnr
"65"					5p. Phaeton...	\$1695	4	3100	agmn	2-4p. Coupe...	1395	2	...	ahnr
5p. Touring...	\$ 895	4	...	ahmn	5p. Roy. Rdster...	1795	2	2995	agmnw	5p. Sedan...	1395	4	...	ahnr
5p. Sportster...	995	2	...	ahmn	5p. P.H. Rdster...	1895	2	2995	Bgmw	"8-78 Royal"				
3p. Coupe...	875	2	...	ahmn	5p. Cab. Rdster...	1995	2	3160	aghamn	4p. Roadster...	1495	...	...	aeghmnor
5p. Sedan...	895	4	...	ahmn	5p. Collap. Rdstr...	2195	2	3160	aghamn	5p. Touring...	1495	...	...	aeghmnor
2-4p. Coupe...	955	2	...	ahmn	5p. 2d. Sedan...	1795	2	3170	aghamno	4p. Coupe...	1495	...	...	aeghmnor
5p. Del. Sedan...	995	4	...	ahmn	5p. 4d. Sedan...	2095	4	3275	aghamnot	5p. Sedan...	1495	...	...	aeghmnor
2-4p. Cabriolet...	1075	2	...	ahmn						"8-82"				
"Royal 75"					DODGE BROS.					5-7p. Touring...	1695	...	...	aeghmnor
5p. Sedan, 2d...	1295	2	...	...	"Std. 6"					2-4p. Roadster...	1695	2	...	aeghmnor
2-4p. Coupe...	1295	...	...	...	2-4p. Conv't Cab...	\$945	2	2570	Bghr	4p. Coupe...	1695	2	...	aeghmnor
5p. Sedan, 4d...	1395	4	...	...	2p. Coupe...	875	2	2490	aghr	5p. Std. Sedan...	1695	4	3490	aeghmnor
5p. Del. Sedan...	1495	4	...	...	5p. Sedan...	895	4	2710	aghr	5p. Prin. Sedan...	1895	4	...	aeghmnoprux
"Big Six"					5p. Sedan Del...	970	4	2780	aeghr	"8-91"				
7p. Touring...	1725	4	3360	ahjlmnw	5p. Sp. Sed. Del...	1045	4	...	Beghjk	2-4p. Roadster...	1995	...	...	aeghmnoprux
5p. Met. Sedan...	1525	4	3800	ahmnt	"Victory 6"					4p. Coupe...	2295	...	...	aeghmnoprux
4p. Coupe...	1725	2	3535	ahmnt	5p. Touring...	995	4	2775	aghamn	5p. Prin. Bro'm...	2295	4	...	aeghmnoprux
3p. Ctry. Club...	1725	2	3535	ahmnt	5p. Sp. Touring...	1245	4	...	Beghjkmn	5p. Prin. Sedan...	2295	4	...	aeghmnoprux
5p. Royal Sedan...	1725	4	3800	ahmnoprux	4p. Sp. Roadster...	1245	2	...	Beghjkmn	"120"				
2-4p. Cabriolet...	1825	2	3450	ahmnp	2p. Coupe...	1045	2	2650	aghamn	5-7p. Touring...	2465	4	...	Beghmnprux
7p. Sedan...	1925	4	3895	ahmnoprux	4p. Coupe Del...	1170	2	2850	Beghjmnr	5p. Std. Sedan...	2465	4	...	aeghmnoprux
7p. Bertine Sed...	2025	4	3945	ahmnoprux	5p. Sedan...	1095	4	2855	aghamn	7p. Std. Sedan...	2565	4	...	aeghmnoprux
"Royal 85"					4p. Brougham...	1095	2	2750	aghamn					
7p. Touring...	1995	4	3655	ahjlmnpwx	4p. Del. Bro'm...	1170	2	2850	Beghjmnr	ERSKINE SIX				
4p. Coupe...	1925	2	3640	ahmnoprux	5p. Del. Sedan...	1170	4	2955	aeghmnrt	"52"				
4p. Ctry. Club...	1925	2	3640	ahmnoprux	5p. Sp. Sedan...	1295	4	3150	Beghjkmnrt	5p. Touring...	\$335	4	...	aghamn
5p. Sedan...	1795	4	3900	ahmnoprux	"Senior"					5p. Club Sedan...	860	2	...	aghamn
7p. Sedan...	2195	4	3950	ahmnoprux	5p. Vic. Bro'm...	1575	2	...	agmnp	2p. Cabriolet...	875	2	...	aghamn
3-5p. Cabriolet...	2095	2	3600	ahmnp	5p. Sedan...	1675	4	...	agmnp	5p. Sedan...	945	4	2600	aghamn
5p. Del. Sedan...	1995	4	4005	Bhilmnoprux	2-4p. Coupe...	1675	...	...	agmnp	4p. Royal Cab...	995	2	...	Beghjr
7p. Bertine Sed...	2295	4	4000	Bhilmnoprux	5p. Sport Sed...	1795	4	...	Bgikmnp	5p. Royal Sedan...	1045	4	2600	Beghjr
CHEVROLET					2-4p. Sp. Coupe...	1795	2	...	Bgikmnp					
2p. Roadster...	\$495	2	2030	dr	5p. Landau Sed...	1845	...	...	Bgikmnp					
5p. Touring...	495	4	2090	dr						du PONT "E"				
5p. Coach...	585	2	2360	dhr	4p. Roadster...	\$2800	...	3700	afghkmnpnx	4p. Roadster...	2800	4	3850	afghkmnpnx
2p. Coupe...	595	2	2235	dhr	5p. Touring...	3200	...	3850	afghkmnpnx	4p. Coupe...	3200	...	3850	afghkmnpnx
5p. Sedan...	675	4	2435	dhr	4p. Conv't Coupe...	3400	...	3800	afghkmnpnx	5p. Sedan...	3400	...	4100	afghkmnpnx
2-4p. Con. Sp. Cab...	695	2	2265	dhr	5p. Sedan...	3400	...	4100	afghkmnpnx	5p. Con. Sedan...	3750	4	4100	Bghikmnpnx
5p. Imperial...	715	4	2405	dhr	"8"					141" W.B.				
CHRYSLER					... Roadster...	\$4360	...	...	Beghkp	... Sp. Phaeton...	4560	...	...	Beghkp
"65"					... Sp. Phaeton...	4560	...	...	Beghkp	7p. Touring...	4560	...	...	Beghkp
2-4p. Roadster...	\$1065	2	2730	aghn	... Conv. Coupe...	4360	...	...	Beghkp	... Club Sedan...	4360	...	...	Beghkp
5p. Touring...	1075	4	2770	aghn	5p. Sedan...	4410	...	...	Beghkp	5p. Limousine...	4410	...	...	Beghkp
2p. Bus. Coupe...	1040	2	2780	aghn	7p. Sedan...	4675	...	...	Beghkp	7p. Sedan...	4675	...	...	Beghkp
5p. Sedan, 2d...	1065	2	2905	aghn	... Conv. Sedan...	5150	...	...	Beghkp	... Town Cab...	5750	...	...	Beghkp
5p. Sedan, 4d...	1145	4	2960	aghn										
2-4p. Coupe...	1145	2	2875	aghn	DURANT					FALCON-KNIGHT				
"75"					"Four"					"12"				
2-4p. Roadster...	1555	2	3190	aeghmn	... Roadster...	\$595	...	1950	ah	5p. Touring...	995	...	2700	...
2-4p. Coupe...	1535	2	3235	aeghmn	... Coupe...	595	...	2185	ah	4p. G.G. Rdster...	1195	...	2935	Beghiklmnp
5p. Royal Sedan...	1535	...	3340	aeghmn	5p. Sedan...	595	2	2330	ah	5p. Sedan...	995	2	2800	ghnr
4-5p. Town Sedan...	1655	...	3360	aghamn	5p. Sedan...	695	4	2480	ah	2-4p. Coupe...	1045	...	2800	ghnr
"80"					2-4p. Conv. Cab...	...	...	2210	ah	5p. Sedan...	1095	4	2875	ghnr
2-4p. Roadster...	\$2795	...	3870	aeghlmpnrwx						FORD "A"				
5p. Sedan...	2945	4	4125	aeghlmpnrpx						2-4p. Roadster...	\$385	2	2066	Bgnr
7p. Sedan...	3075	4	4250	aeghlmpnrpx						5p. Phaeton...	395	4	2150	Bgnr
5p. Town Sedan...	2995	4	4140	aeghlmpnrpx						2p. Bus. Coupe...	495	2	2170	Bgnr
7p. Sedan Lim...	3495	4	4285	aeghlmpnrpx						5p. Tudor Sedan...	495	2	2336	Bgnr
										2-4p. Spt. Coupe...	550	2	2223	Bgnr
										2p. Std. Coupe...	550	2	2220	Bgnr
										5p. Fordor Sedan...	625	4	2386	Bgnr

KEY TO SYMBOLS

*—Italic figures denote shipping weight.
A—Wood wheels with spare.
B—Wood wheels.
C—Wire wheels with spare.
D—Wire wheels.
E—Optional wheels with spare.

F—Type of wheels optional.
G—Disk wheels with spare.
H—Disk wheels.
I—Front and rear bumpers.
J—Front bumper.
K—Shock absorbers or snubbers.
L—Automatic windshield wiper.

M—Trunk and trunk rack.
N—Trunk rack, no trunk.
O—Spare tire.
P—Spare tire lock.
Q—Engine heat indicator.
R—Dash gasoline gauge.

S—Car heater.
T—Cigar lighter.
U—Rear traffic signal.
V—Spotlight.
W—Vanity and smoking set.
X—Smoking set.

Y—Vanity set.
Z—Windshield wings.
aa—Clock.
ab—Overall length.
ac—Prices on application.

Prices, Weights and Equipment of Current Passenger Car Models

Passengers and Model	F.O.B. Price	Doors	Net Weight*	Standard Equipment	Passengers and Model	F.O.B. Price	Doors	Net Weight*	Standard Equipment	Passengers and Model	F.O.B. Price	Doors	Net Weight*	Standard Equipment	Passengers and Model	F.O.B. Price	Doors	Net Weight*	Standard Equipment
FRANKLIN "Series 12 B" 119" W.B.					HUPMOBILE "Century 6"					LINCOLN "g"					MARMON "68"				
3p. Coupe.....	\$262	2	1450	aeghknprx	5p. Phaeton.....	\$1425	2	2900	aghnr	2p. Spt. Rdster..	\$4600	2	4700	aeghknprx	2-4p. Roadster..	\$1565	2	2700	ahmnrw
4-5p. Vlc. Bro'm.	\$2760	3	3550	aeghknprx	2-4p. Sportster..	1435	2	2820	aghnr	2-4p. Club Rdstr.	4600	4	4740	aeghknprx	5p. Sedan.....	1465	4	2897	ahmnr
5p. Sedan.....	2790	3	3580	aeghknprx	7p. Phaeton.....	1455	4	2955	aghnr	7p. Spt. Touring.	4600	4	4940	aeghknprx	4p. Vic. Coupe..	1520	2	2867	ahmnr
5p. Ox. Sedan.....	2790	3	3580	aeghknprx	5p. Sedan 2d.....	1345	2	2975	aghnr	4p. Spt. Phaeton.	4600	4	4910	beghknprx	2-4p. Coupe.....	1465	2	2827	ahmnr
5p. Spt. Sedan.....	2910	3	3630	aeghknprx	4p. Coupe.....	1385	2	2965	aghnr	4p. Coupe.....	4600	2	4805	aeghknprx	"78"				
3-5p. Con't vt Cpe.	2850	3	3510	aeghknprx	5p. Sedan.....	1395	4	3040	aghnr	4p. Sedan.....	4800	4	4930	aeghknprx	2-4p. Roadster..	1985	2	3007	ahlmnrw
128" W.B.					2-4p. Cabriolet..	1475	2	2965	aghnr	5p. Sedan.....	4800	4	5010	aeghknprx	2-4p. Coupe.....	1985	2	3097	ahlmnr
2-4p. Sp. Runab't.	2975	3	3440	aeghknprx	"Century 8"					2p. Coupe.....	5000	4	4720	aeghknprx	4p. Vic. Coupe..	2065	2	3066	ahlmnr
5p. Sp. Touring..	2975	3	3630	aeghknprx	5p. Phaeton.....	1905	3	3285	aghmv	7p. Sedan.....	5000	4	5050	aeghknprx	5p. Sedan.....	1965	4	3104	ahlmnr
7p. Touring.....	3060	3	3630	aeghknprx	2-4p. Sportster..	1915	2	3335	aghmv	7p. Limousine..	5200	4	5165	aeghknprx	"E-75"				
7p. Sedan.....	2980	3	3790	aeghknprx	7p. Phaeton.....	1935	3	3355	aghmv	4p. Berline.....	5500	5	5070	aeghknprx	2p. Speedster..	3485	2	4251	aeghknprx
7p. Ox. Sedan.....	2980	3	3790	aeghknprx	5p. Sedan, 2d.....	1825	2	3385	aghmv	7p. Limousine..	6000	5	5380	aeghknprx	4p. Speedster..	3485	2	4256	aeghknprx
7p. Limousine..	3080	3	3870	aeghknprx	4p. Coupe.....	1865	3	3375	aghmv	7p. Brougham..	6500	5	5025	aeghknprx	5p. Phaeton.....	3485	4	4017	aeghknprx
					5p. Sedan, 4d.....	1875	4	3455	aghmv	6p. Ber. Landau.	6500	5	5030	aeghknprx	7p. Tour. Speed..	3565	4	4480	aeghknprx
					2-4p. Cabriolet..	1955	2	3345	aghmv	7p. Cabriolet..	6800	4	4985	aeghknprx	2p. Coupe Rdstr.	3195	2	4452	aeghknprx
										7p. Le Baron Cab	7000	5	5165	aeghknprx	5p. Town Coupe..	3485	2	4373	aeghknprx
										7p. Holbrook Cab	7200	5	5205	aeghknprx	2p. Coupe.....	3485	2	4346	aeghknprx
										7p. Collap. Cab	7300	5	5140	aeghknprx	4p. Victoria.....	3485	2	4346	aeghknprx
															5p. Brougham..	3565	4	4525	aeghknprx
															7p. Sedan.....	3640	4	4620	aeghknprx
															5p. Cus. Sedan..	3960	4	4515	aeghknprx
															7p. Cus. Sedan..	4075	4	4678	aeghknprx
															7p. Cus. Limou..	4175	4	4718	aeghknprx
GARDNER "120"					JORDAN "Cross City 6"					LOCOMOBILE "8-70"					MOON "6-60"				
4p. Roadster.....	\$1395	2	2995	aghmr	4p. Blue Boy.....	\$1495	4	2800	Beghkmnr	5p. Brougham..	\$1995	4	3525	afghmr	5p. Phaeton.....	\$895	4	2340	an
5p. Sedan.....	1595	2	2995	aghmr	4p. Spt. Salon..	1295	2	2775	aghmr	5p. Sedan.....	1995	4	3575	afghmr	5p. Coach.....	995	2	2420	an
5p. Cabriolet.....	1495	2	2995	aghmr	2-4p. Tomboy..	1395	2	2650	aghmr	4p. Vic. Coupe..	1995	2	3600	afghmr	5p. Roy Sedan..	1195	2	2520	ahin
5p. Sport Sedan..	1295	2	2995	aghmr	5p. Sedan.....	1395	4	2775	aghmr	"8-80"					5p. Roy Sedan..	1295	4	2605	ahn
4p. Roadster.....	1895	2	3040	aeghmr	"JE"					4p. Spt. Touring.	3100	4	3972	beghkmnr	5p. Touring.....	995	4	2340	agh
5p. Cabriolet.....	1795	2	3040	aeghmr	4p. Collap Coupe	1995	2	3185	aghmr	4p. Coupe Vic..	2775	2	3820	aeghknprx	7p. Roadster..	1195	2	2295	agh
5p. Bro'm 4d.....	1875	4	3360	aeghmr	4p. Perm. Coupe	1995	2	3185	aghmr	4p. Collap Coupe	3000	2	3780	aeghknprx	5p. Sedan, 2d.....	1295	2	2520	agh
5p. Sedan.....	1895	4	3380	aeghmr	5p. Victoria.....	1995	2	3275	aghmr	5p. Sedan.....	2650	4	3950	aeghknprx	5p. Sedan, 4d.....	1345	4	2605	agh
5p. Victoria.....	1895	4	3380	aeghmr	5p. Land. Bro'm	1995	4	3300	aghmr	5p. Brougham..	2700	4	3990	aeghknprx	"6-72 Std."				
"130"										7p. Sedan.....	3150	4	4140	aeghknprx	2p. Std. Roadster	1295	2	2720	agh
2-4p. Roadster..	2195	2	3440	aeghmr						6p. Cabriolet..	3300	4	4280	aeghknprx	5p. Roy Roadstr	1395	2	2635	agh
5p. Cabriolet.....	2295	2	3440	aeghmr						4p. Sportif.....	4	4	5030	afghktr	5p. Sedan.....	1395	4	2810	agh
5p. Brougham..	2375	4	3750	aeghmr						4p. Roadster..	2	2	5330	afghktr	5p. Sedan.....	1445	4	2810	agh
5p. Sedan.....	2395	4	3790	aeghmr						7p. Touring.....	4	4	5330	afghktr	5p. Sedan.....	1445	4	2930	agh
5p. Victoria.....	2395	4	3790	aeghmr						7p. Tour. Lim..	4	4	5640	afghktr	"6-72 Royal"				
										6p. Brougham..	4	4	5464	afghktr	5p. Cabriolet..	1495	2	2880	agh
										5p. Vic. Sedan..	4	4	5600	afghktr	5p. Sedan.....	1595	4	3080	agh
										7p. Lim. Enc. Dr.	4	4	5868	afghktr	5p. Petite Sedan.	1595	2	2520	agh
										7p. Cabriolet..	4	4	5824	afghktr	5p. Vic. Coupe..	1695	2	2520	agh
										"90"					"8-80"				
										4p. Sportif.....	5900	4	4475	aeghknprx	5p. Petite Sedan.	2195	4	3480	agh
										4p. Roadster.....	5900	2	4370	aeghknprx	5p. Sedan.....	2195	4	3520	agh
										7p. Touring.....	6000	4	4475	aeghknprx	2-4p. Cab. Rdstr	2095	2	3365	agh
										5p. Vic. Sedan..	7300	4	4842	afghmr	4p. Vic. Coupe..	2195	4	2520	agh
										7p. Suburban..	7500	4	4930	afghmr	7p. Sedan.....	2395	4	2520	agh
										4p. Vic. Sedan..	7450	4	4930	afghmr	"6-72 Std."				
															2p. Std. Roadster	1295	2	2720	agh
															5p. Roy Roadstr	1395	2	2635	agh
															5p. Sedan.....	1395	4	2810	agh
															5p. Sedan.....	1445	4	2810	agh
															5p. Sedan.....	1445	4	2930	agh
															"6-72 Royal"				
															5p. Cabriolet..	1495	2	2880	agh
															5p. Sedan.....	1595	4	3080	agh
															5p. Petite Sedan.	1595	2	2520	agh
															5p. Vic. Coupe..	1695	2	2520	agh
															"8-80"				
															5p. Petite Sedan.	2195	4	3480	agh
															5p. Sedan.....	2195	4	3520	agh
															2-4p. Cab. Rdstr	2095	2	3365	agh
															4p. Vic. Coupe..	2195	4	2520	agh
															7p. Sedan.....	2395	4	2520	agh
															"6-72 Std."				
															2p. Std. Roadster	1295	2	2720	agh
															5p. Roy Roadstr	1395	2	2635	agh
															5p. Sedan.....	1395	4	2810	agh
															5p. Sedan.....	1445	4	2810	agh
															5p. Sedan.....	1445	4	2930	agh
															"6-72 Royal"				
															5p. Cabriolet..	1495	2	2880	agh
															5p. Sedan.....	1595	4	3080	agh
															5p. Petite Sedan.	1595	2	2520	agh
															5p. Vic. Coupe..	1695	2	2520	agh
															"8-80"				
															5p. Petite Sedan.	2195	4	3480	agh
															5p. Sedan.....	2195	4	3520	agh
															2-4p. Cab. Rdstr	2095	2	3365	agh
															4p. Vic. Coupe..	2195	4	2520	agh
															7p. Sedan.....	2395	4	2520	agh
															"6-72 Std."				
															2p. Std. Road				

Prices, Weights and Equipment of Current Passenger Car Models

Passengers and Model	F.O.B. Price	Doors	Net Weight*	Standard Equipment	Passengers and Model	F.O.B. Price	Doors	Net Weight*	Standard Equipment	Passengers and Model	F.O.B. Price	Doors	Net Weight*	Standard Equipment	Passengers and Model	F.O.B. Price	Doors	Net Weight*	Standard Equipment		
4p. Sp. Rdster...	\$1075	2	2730	aejh	PIERCE-ARROW "81"	2p. Runabout...	\$2600	2	3350	afghlmnr	ROLLS ROYCE "Si. Ghost" Open Models... Closed Models... "New Phan" Open Models... Closed Models...	5p. C.C. Sedan...	2495	4	4295	STUTZ "BB" "Custom" 131" W.B. 2p. Speedster... 4p. Speedster... 4p. Speedster... 2p. Black Hawk... 4p. Black Hawk... 2p. Coupe... 4p. Vic. Coupe... 5p. Coupe... 5p. Sedan... 5p. Brougham... 2p. Cab. Coupe...	3495	2	4478	aefghlmnrpx	
2-4p. Cabriolet...	1155	2	2825	ahn		4p. Touring...	2700	4	3365	afghlmnr		5p. C.C. Sedan...	2495	4	4295		2p. Speedster...	3595	4	4509	aefghlmnrpx
5p. 2d. Sedan...	1045	2	2890	ahn		7p. Touring...	2850	4	3500	afghlmnr		5p. C.C. Sedan...	2495	4	4295		4p. Speedster...	3845	4	4600	aefghlmnrpx
3p. Land. Coupe	1045	2	2890	ahn		5p. Club Bro'm...	2475	2	3540	afghlmnrpx		5p. C.C. Sedan...	2495	4	4295		2p. Black Hawk...	4895	2	4300	aefghlmnrpx
5p. 4d. Sedan...	1145	4	2980	ahn		2p. Coupe metal...	2650	2	3460	afghlmnrpx		5p. C.C. Sedan...	2495	4	4295		4p. Black Hawk...	4945	2	4300	aefghlmnrpx
5p. Land. Sedan.	1265	4	3050	aejh		5p. Brougham...	3250	2	3540	afghlmnrpx		5p. C.C. Sedan...	2495	4	4295		2p. Coupe...	3495	2	4649	aefghlmnrpx
OLDSMOBILE "F-28"						2p. Coupe leath...	2650	2	3490	afghlmnrpx		5p. C.C. Sedan...	2495	4	4295		4p. Vic. Coupe...	3495	2	4679	aefghlmnrpx
5p. Sp. Roadster...	\$995	2	2650	ceghlmnr		5p. Club Sedan...	2750	4	3635	afghlmnrpx		5p. C.C. Sedan...	2495	4	4295		5p. Coupe...	3545	2	4769	aefghlmnrpx
5p. Sp. Touring...	995	2	2650	ceghlmnr		2-4p. Coupe met.	2750	2	3530	afghlmnrpx		5p. C.C. Sedan...	2495	4	4295		5p. Sedan...	3570	4	4977	aefghlmnrpx
2p. Coupe...	925	2	2785	aeghlmnr		5p. Sedan...	2750	4	3605	afghlmnrpx		5p. C.C. Sedan...	2495	4	4295		5p. Brougham...	3570	4	4820	aefghlmnrpx
5p. Sedan, 2d...	925	2	2785	aeghlmnr	2-4p. Coupe lea...	2750	2	3560	afghlmnrpx	5p. C.C. Sedan...	2495	4	4295	2p. Cab. Coupe...	3695	2	4520	aefghlmnrpx			
2-4p. Spt. Coupe	995	2	2680	ceghlmnr	2p. Con't Cpe...	2850	2	3455	afghlmnrpx	5p. C.C. Sedan...	2495	4	4295	7p. Speedster...	3895	4	4748	aefghlmnrpx			
5p. Sedan, 4d...	1025	4	2860	aeghlmnr	5p. Club Land...	2850	4	3640	afghlmnrpx	5p. C.C. Sedan...	2495	4	4295	5p. Country Club	3895	4	5018	aefghlmnrpx			
5p. Landau Sed...	1085	4	2855	ceghlmnr	7p. Sedan...	2850	4	3700	afghlmnrpx	5p. C.C. Sedan...	2495	4	4295	7p. Sedan...	3895	4	5018	aefghlmnrpx			
"DeLuxe Series"					4p. Coupe...	2950	2	3490	afghlmnrpx	5p. C.C. Sedan...	2495	4	4295	7p. Sedan Lim...	3995	4	5159	aefghlmnrpx			
5p. Sp. Phaeton...	1145	4	2800	Beghlmnr	2-4p. Conv't Cpe...	2950	2	3525	afghlmnrpx	5p. C.C. Sedan...	2495	4	4295	5p. Collap. Sed...	3995	4	5020	aefghlmnrpx			
5p. Sp. Roadster...	1145	2	2770	Beghlmnr	7p. Enc. Dr. Lim.	2950	2	3755	afghlmnrpx	5p. C.C. Sedan...	2495	4	4295	5p. Collap. Lim...	4095	4	5030	aefghlmnrpx			
5p. Spec. Coupe...	995	2	2760	aeghlmnr	5p. Sedan Land...	3550	4	3605	afghlmnrpx	5p. C.C. Sedan...	2495	4	4295	7p. Collap. Lim...	4195	4	5030	aefghlmnrpx			
5p. Sport Coupe...	1145	2	2840	Beghlmnr	7p. Sed. Landau...	3700	4	3700	afghlmnrpx	5p. C.C. Sedan...	2495	4	4295	"Weyman-Cus." 131" W.B. 2p. Black Hawk... 5p. Sedan... 4p. Sedan... 4p. Coupe... 5p. Landau Sed...							
5p. Sedan...	1175	4	3005	Beghlmnr	7p. Enc. Dr. Land.	3800	4	3755	afghlmnrpx	5p. C.C. Sedan...	2495	4	4295	5p. Sedan...	4120	4	4393	aefghlmnrpx			
5p. Landau Sed...	1235	4	3005	Beghlmnr	5p. Opera Bro'm	7000	4	4865	afghlmnrpx	5p. C.C. Sedan...	2495	4	4295	4p. Sedan...	4120	2	4393	aefghlmnrpx			
OVERLAND					2p. Runabout...	5875	2	4560	afghlr	5p. C.C. Sedan...	2495	4	4295	4p. Coupe...	4120	4	4393	aefghlmnrpx			
5p. "4" Whippet	\$455	4	1985	agr	4p. Touring...	5875	4	4510	afghlr	5p. C.C. Sedan...	2495	4	4295	5p. Landau Sed...	4420	4	4393	aefghlmnrpx			
2-4p. Roadster...	525	2	1932	agr	7p. Touring...	5875	4	4595	afghlr	5p. C.C. Sedan...	2495	4	4295	5p. Sedan...	4495	4	4393	aefghlmnrpx			
2p. Coupe...	535	2	2060	agr	7p. Sedan...	5875	4	4815	afghlr	5p. C.C. Sedan...	2495	4	4295	5p. Sedan...	4545	4	4393	aefghlmnrpx			
2-4p. Coupe Cab.	595	2	2122	agr	7p. Lim. Encl...	5875	4	4870	afghlr	5p. C.C. Sedan...	2495	4	4295	7p. Sedan...	4745	4	4393	aefghlmnrpx			
5p. Coach...	535	2	2160	agr	3p. Coupe...	6375	2	4760	afghlr	5p. C.C. Sedan...	2495	4	4295	7p. Limousine...	4995	4	4778	aefghlmnrpx			
5p. Sedan...	610	4	2210	agr	4p. Cpe. Sedan...	6375	2	4795	afghlr	5p. C.C. Sedan...	2495	4	4295	7p. Landau Lim...	5295	4	4778	aefghlmnrpx			
"6" Whippet					4p. Sedan...	6375	2	4830	afghlr	5p. C.C. Sedan...	2495	4	4295	"Salon Cus." 5p. PW Sedan... 7p. PW Sedan... 7p. Con. T'n Car							
2-4p. Roadster...	685	2	2228	agr	7p. Enc. Dr. Lan.	6000	4	4895	afghlr	5p. C.C. Sedan...	2495	4	4295	5p. PW Sedan...	6345	4	5014	aefghlmnrpx			
5p. Touring...	615	4	2323	agr	7p. Sedan Land...	6000	4	4840	afghlr	5p. C.C. Sedan...	2495	4	4295	7p. PW Sedan...	6345	4	5014	aefghlmnrpx			
2-4p. Coupe...	695	2	2356	agr	4p. Lim. Encl...	6375	2	4840	afghlr	5p. C.C. Sedan...	2495	4	4295	7p. Con. T'n Car	6895	4	5044	aefghlmnrpx			
5p. Coach...	695	2	2423	agr	4p. C. C. Sedan...	6475	2	4805	afghlr	5p. C.C. Sedan...	2495	4	4295	VELIE "6-55" 3p. Coupe... 5p. Coupe... 5p. Spec. Sedan... 5p. Royal Sedan...							
5p. Sedan...	770	4	2484	agr	2p. Coupe...	6600	2	4745	afghlr	5p. C.C. Sedan...	2495	4	4295	5p. Std. Touring...	1195	2	2	ahmnr			
PACKARD					4p. Sedan Land...	6600	4	4795	afghlr	5p. C.C. Sedan...	2495	4	4295	5p. Sp. Touring...	1195	2	2	ahmnr			
5p. "Std. 8"	\$2435	4	4185	dghlmnr	4p. Enc. Dr. Land.	6600	4	4880	afghlr	5p. C.C. Sedan...	2495	4	4295	3-5p. Coupe...	1265	2	2980	aefghlmnr			
2-4p. Coupe...	2510	2	4100	dghlmnr	7p. Fr. Limou...	7500	4	4740	afghlr	5p. C.C. Sedan...	2495	4	4295	5p. Coupe...	1265	2	3070	aefghlmnr			
2-4p. Con. Coupe	2585	2	4020	dghlmnr	7p. Fr. Landau...	8000	4	4865	afghlr	5p. C.C. Sedan...	2495	4	4295	5p. Spec. Sedan...	1265	4	3100	aefghlmnr			
"Std. 8"					PLYMOUTH					STUDEBAKER					WILLIS-KNIGHT						
2-4p. Runabout...	\$2535	2	3905	dghlmnr	5p. Touring...	\$675	4	2160	ah	5p. Touring...	\$1265	4	3280	aejhlmnr	2-4p. Roadster...	\$995	2	2631	aejhlmnr		
5p. Phaeton...	2535	4	3905	dghlmnr	2-4p. Roadster...	695	4	2255	B	7p. Touring...	1325	4	3280	aejhlmnr	5p. Touring...	995	4	2710	aejhlmnr		
7p. Touring...	2635	4	3950	dghlmnr	2p. Coupe...	710	2	2250	B	5p. Club Sedan...	1185	2	3280	aejhlmnr	2-4p. Coupe...	1045	2	2507	aejhlmnr		
4p. Coupe...	2735	2	4225	dghlmnr	5p. Sedan, 2d...	685	2	2295	ah	2p. Bus. Coupe...	1265	2	3280	aejhlmnr	5p. Coach...	995	2	2816	aejhlmnr		
5p. Club Sedan...	2735	2	4240	dghlmnr	2-4p. DeL. Coupe	700	2	2435	ah	4p. Victoria...	1345	2	3280	aejhlmnr	5p. Sedan...	1095	4	2858	aejhlmnr		
7p. Sedan...	2735	4	4440	dghlmnr	5p. Sedan, 4d...	735	4	2460	ah	5p. Royal Cab...	1395	2	3280	aejhlmnr	5p. Std. Touring...	1850	2	3486	aejhlmnr		
7p. Sedan Lim...	2835	4	4475	dghlmnr	PONTIAC "6"					5p. Royal Sedan...	1395	4	3415	Beghlmnr	5p. Touring...	1850	4	3675	aejhlmnr		
"640"					2-4p. Roadster...	\$745	2	2270	ahn	5p. Cus. Sed. Lim.	1395	4	3415	Beghlmnr	2-4p. Cab Coupe	1995	2	3726	aejhlmnr		
2-4p. Runabout...	\$3175	2	2	2	5p. Sp. Phaeton...	775	2	2425	ahn	5p. Cus. Sed. Lim.	1395	4	3415	Beghlmnr	4p. Foursome Sed.	2195	4	4128	aejhlmnr		
5p. Phaeton...	3175	4	3905	dghlmnr	2p. Coupe...	745	2	2435	ahn	5p. Cus. Sed. Lim.	1395	4	3415	Beghlmnr	5p. Sedan...	1995	4	4003	aejhlmnr		
7p. Touring...	3275	4	4225	dghlmnr	5p. 2d. Sedan...	745	2	2520	ahn	5p. Cus. Sed. Lim.	1395	4	3415	Beghlmnr	7p. Touring...	2285	4	3943	aejhlmnr		
2p. Coupe...	3250	2	3350	dghlmnr	4p. Sport Cab...	795	2	2455	ahn	5p. Cus. Sed. Lim.	1395	4	3415	Beghlmnr	5p. Coupe...	2295	2	3939	aejhlmnr		
2-4p. Conv. Cpe.	3250	2	3350	dghlmnr	5p. Sp. Sedan...	825	4	2595	ahn	5p. Cus. Sed. Lim.	1395	4	3415	Beghlmnr	7p. Sedan...	2595	4	4112	aejhlmnr		
5p. Club Sedan...	3750	4	3750	dghlmnr	5p. Sp. Landau...	875	4	2640	neh	5p. Cus. Sed. Lim.	1395	4	3415	Beghlmnr	7p. Limousine...	2695	4	4146	aejhlmnr		
7p. Sedan...	3750	4	3750	dghlmnr	REO					5p. Cus. Sed. Lim.	1395	4	3415	Beghlmnr	2-4p. Roadster...	1350	2	2910	aejhlmnr		
7p. Sedan Lim...	3850	4	3850	dghlmnr	"Flying Cloud"	\$1685	2	3350	aejhlmnr	5p. Cus. Sed. Lim.	1395	4	3415	Beghlmnr	5p. Touring...	1295	4	2951	aejhlmnr		
PEERLESS					2-4p. Roadster...	1645	2	3535	aejhlmnr	5p. Cus. Sed. Lim.	1395	4	3415	Beghlmnr	2p. Coupe...	1295	2	2767	aejhlmnr		
2-4p. Roadster...	\$1195	2	2635	ceghlmnr	5p. Brougham...	1625	2	3445	aejhlmnr	5p. Cus. Sed. Lim.	1395	4	3415	Beghlmnr	5p. Coach...	1295	2	2767	aejhlmnr		
5p. Phaeton...	1195	4	2635	ceghlmnr	2p. Sp. Coupe...	1795	2	3550	aejhlmnr	5p. Cus. Sed. Lim.	1395	4	3415	Beghlmnr	2-4p. Cab Coupe	1495	2	2916	aejhlmnr		
2-4p. Coupe...	1295	4	2775	ceghlmnr	4p. Victoria...	1845	4	3645	aejhlmnr	5p. Cus. Sed. Lim.	1395	4	3415	Beghlmnr	5p. Sedan...	1495	4	3187	aejhlmnr		
5p. Brougham...	1195	4	2850	ceghlmnr	5p. DeL. Sedan...	1995	4	3645	aejhlmnr	5p. Cus. Sed. Lim.	1395	4	3415	Beghlmnr	"Great 6" 2-4p. Roadster... 5p. Touring... 2-4p. Coupe... 5p. Coach... 5p. Sedan...						
5p. Sedan...	1195	2	2780	ceghlmnr	"Volwerine"	1195	2	2850	aeghlmnr	5p. Cus. Sed. Lim.	1395	4	3415	Beghlmnr	2-4p. Roadster...	1850	2	3486	aejhlmnr		
5p. Sedan...	1295	4	2905	ceghlmnr	4p. Cabriolet...	1195	2	2930	aeghlmnr	5p. Cus. Sed. Lim.	1395	4	3415	Beghlmnr	5p. Touring...	1850	4	3675	aejhlmnr		
"6-91"					5p. Brougham...	1195	2	2930	aeghlmnr	5p. Cus. Sed. Lim.	1395	4	3415	Beghlmnr	2-4p. Cab Coupe	1995	2	3726	aejhlmnr		
2-4p. Coupe...	1895	3	3225	ceghlmnr	5p. Sedan...	1295	4	3090	aeghlmnr	5p. Cus. Sed. Lim.	1395	4	3415	Beghlmnr	4p. Foursome Sed.	2195	4	4128	aejhlmnr		
5p. Sedan...	1895	4	3355	ceghlmnr	ROAMER					4p. Sedan...	1495	4	3665	aejhlmnr	5p. Sedan...	1995	4	4003	aejhlmnr		
4p. Victoria...	1895	3	3240	ceghlmnr	"8-78"	\$1595	2	3450	aejhlmnr	5p. Victoria...	1545	2	3665	aejhlmnr	7p. Touring...	2285	4	3943	aejhlmnr		
7p. Sedan...	1995	4	3420	ceghlmnr	2p. Roadster...	1750	2	3225	aejhlmnr	5p. Sedan Regal...	1665	4	3815	Beghlmnr	5p. Coupe...	2295	2	3939	aejhlmnr		
"6-81"					2p. Coupe...	1795	2	3380	aejhlmnr	5p. Sedan Regal...	1665	4	3815	Beghlmnr	7p. Sedan...	2595	4	4112	aejhlmnr		
5p. Phaeton...	1540	4	3140	aeghlmnr	"8-80"	1895	2	3310	aejhlmnr	4p. State Rdstr.	1850	2	3760	Beghlmnr	7p. Limousine...	2695	4	4146	aejhlmnr		
7p. Touring...	1595	4	3140	aeghlmnr	2p. Roadster...	1895	2	3310	aejhlmnr	5p. State Rdstr.	1850	2	3760	Beghlmnr	2-4p. Roadster...	1350	2	2910	aejhlmnr		
2-4p. Coupe...	1595	3	3140																		

Mechanical Specifications of Current Passenger Car Models

This list comprises current cars distributed on a national basis only. Data for previous models back to 1920 will be found in the Chilton Catalog and Directory

MAKE AND MODEL	Wheel Base (Inches)	Tire Size	Make and Model	Number of Cyls.	Bore and Stroke	Rated H.P.	N.A.C.C. Rating	Piston Displacement	Valve Arrangement	Maximum Brake Horsepower at Specified Speed	Compression Ratio	Camshaft Drive	Piston Material	Crankshaft Vibration Damper	Oil System	Radiator Shutter	Carburetor	Air Cleaner?	ELECTRICAL SYSTEM		Clutch—Type and Make	Gear Set—Make	Universal—Type and Make	REAR AXLE		BRAKES		Steering Gear—Make	Rear Spring—Type and Length	Chassis Lubrication—	ABBREVIATIONS—NAMES OF MFRS. OF STOCK PARTS		
																			Generator and Ignition System	Starter Make				Type and Make	Gear Ratio	Foot—Type and Location	Hand—Type and Location					4-Wheel Type	
Auburn	76	28x5 25	Lyc. WS	6-2 1/2 x 4 1/4	19.8	185 L	L	60-3400 5.06	Ch.	Al.	Al.	4	Y	PG	N	N	N	N	N	D-R	D-R	P. Long.	War.	m-U.P.	Col.	4.9	D	E-T	H	Ross	8-56 3/4	Bi	A-Ber—American-Hoeh
Auburn	88	30x6 00	Lyc. GS	8-2 1/2 x 4 1/4	26.4	247 L	L	88-3200 5.15	Ch.	Al.	Al.	4	Y	PG	N	N	N	N	N	D-R	D-R	P. Long.	War.	m-U.P.	Col.	4.9	D	E-T	H	Ross	8-56 3/4	Bi	A-K—Atwater Kent
Auburn	115	30x6 20	Lyc. AMD	8-3 1/2 x 4 1/4	33.8	299 L	L	115-3300 4.56	Ch.	Al.	Al.	4	Y	PG	N	N	N	N	N	D-R	D-R	P. Long.	Det.	m-U.P.	Col.	3.9	D	E-T	H	Ross	8-56 3/4	Bi	A-L—Auto-Lite
Buick	116	30x5 50	Own.	6-3 1/2 x 4 1/4	26.3	239 L	L	91-2800	Ch.	Al.	Al.	4	Y	PG	N	N	N	N	N	D-R	D-R	P. Long.	Own.	m-U.P.	Col.	4.6	D	E-T	H	Ross	V-48	Ad	Ad—Adams
Buick	121 & 129	32x6 75	Own.	8-3 1/2 x 4 1/4	31.5	310 L	L	95-3000 5.3	Ch.	Al.	Al.	4	Y	PG	N	N	N	N	N	D-R	D-R	P. Long.	Own.	m-U.P.	Col.	4.6	D	E-T	H	Ross	V-48	Ad	Ad—Adams
Cadillac	341	32x6 75	Own.	8-3 1/2 x 4 1/4	35.1	341 L	L	95-3000 5.3	Ch.	Al.	Al.	4	Y	PG	N	N	N	N	N	D-R	D-R	P. Long.	Own.	m-U.P.	Col.	4.6	D	E-T	H	Ross	V-48	Ad	Ad—Adams
Chandler	Big 6	32x6 00	Own.	6-3 1/2 x 4 1/4	23.4	194 L	L	80-3200 5.0	Ch.	Al.	Al.	4	Y	PG	N	N	N	N	N	D-R	D-R	P. Long.	Own.	m-U.P.	Col.	4.6	D	E-T	H	Ross	V-48	Ad	Ad—Adams
Chandler	65	29x5 50	Own.	6-3 1/2 x 4 1/4	23.4	194 L	L	80-3200 5.0	Ch.	Al.	Al.	4	Y	PG	N	N	N	N	N	D-R	D-R	P. Long.	Own.	m-U.P.	Col.	4.6	D	E-T	H	Ross	V-48	Ad	Ad—Adams
Chandler	Royal 75	29x5 50	Own.	6-3 1/2 x 4 1/4	23.4	194 L	L	80-3200 5.0	Ch.	Al.	Al.	4	Y	PG	N	N	N	N	N	D-R	D-R	P. Long.	Own.	m-U.P.	Col.	4.6	D	E-T	H	Ross	V-48	Ad	Ad—Adams
Chandler	85	32x6 00	Own.	6-3 1/2 x 4 1/4	23.4	194 L	L	80-3200 5.0	Ch.	Al.	Al.	4	Y	PG	N	N	N	N	N	D-R	D-R	P. Long.	Own.	m-U.P.	Col.	4.6	D	E-T	H	Ross	V-48	Ad	Ad—Adams
Chrysler	107	32x6 00	Own.	6-3 1/2 x 4 1/4	23.4	194 L	L	80-3200 5.0	Ch.	Al.	Al.	4	Y	PG	N	N	N	N	N	D-R	D-R	P. Long.	Own.	m-U.P.	Col.	4.6	D	E-T	H	Ross	V-48	Ad	Ad—Adams
Chrysler	National	107	Own.	6-3 1/2 x 4 1/4	23.4	194 L	L	80-3200 5.0	Ch.	Al.	Al.	4	Y	PG	N	N	N	N	N	D-R	D-R	P. Long.	Own.	m-U.P.	Col.	4.6	D	E-T	H	Ross	V-48	Ad	Ad—Adams
Chrysler	Imperial '80'	117	Own.	6-3 1/2 x 4 1/4	23.4	194 L	L	80-3200 5.0	Ch.	Al.	Al.	4	Y	PG	N	N	N	N	N	D-R	D-R	P. Long.	Own.	m-U.P.	Col.	4.6	D	E-T	H	Ross	V-48	Ad	Ad—Adams
Cunningham	75	30x6 00	Own.	6-3 1/2 x 4 1/4	23.4	194 L	L	80-3200 5.0	Ch.	Al.	Al.	4	Y	PG	N	N	N	N	N	D-R	D-R	P. Long.	Own.	m-U.P.	Col.	4.6	D	E-T	H	Ross	V-48	Ad	Ad—Adams
Cunningham	Imperial '80'	117	Own.	6-3 1/2 x 4 1/4	23.4	194 L	L	80-3200 5.0	Ch.	Al.	Al.	4	Y	PG	N	N	N	N	N	D-R	D-R	P. Long.	Own.	m-U.P.	Col.	4.6	D	E-T	H	Ross	V-48	Ad	Ad—Adams
Cunningham	Imperial '80'	117	Own.	6-3 1/2 x 4 1/4	23.4	194 L	L	80-3200 5.0	Ch.	Al.	Al.	4	Y	PG	N	N	N	N	N	D-R	D-R	P. Long.	Own.	m-U.P.	Col.	4.6	D	E-T	H	Ross	V-48	Ad	Ad—Adams
Cunningham	Imperial '80'	117	Own.	6-3 1/2 x 4 1/4	23.4	194 L	L	80-3200 5.0	Ch.	Al.	Al.	4	Y	PG	N	N	N	N	N	D-R	D-R	P. Long.	Own.	m-U.P.	Col.	4.6	D	E-T	H	Ross	V-48	Ad	Ad—Adams
Cunningham	Imperial '80'	117	Own.	6-3 1/2 x 4 1/4	23.4	194 L	L	80-3200 5.0	Ch.	Al.	Al.	4	Y	PG	N	N	N	N	N	D-R	D-R	P. Long.	Own.	m-U.P.	Col.	4.6	D	E-T	H	Ross	V-48	Ad	Ad—Adams
Cunningham	Imperial '80'	117	Own.	6-3 1/2 x 4 1/4	23.4	194 L	L	80-3200 5.0	Ch.	Al.	Al.	4	Y	PG	N	N	N	N	N	D-R	D-R	P. Long.	Own.	m-U.P.	Col.	4.6	D	E-T	H	Ross	V-48	Ad	Ad—Adams
Cunningham	Imperial '80'	117	Own.	6-3 1/2 x 4 1/4	23.4	194 L	L	80-3200 5.0	Ch.	Al.	Al.	4	Y	PG	N	N	N	N	N	D-R	D-R	P. Long.	Own.	m-U.P.	Col.	4.6	D	E-T	H	Ross	V-48	Ad	Ad—Adams
Cunningham	Imperial '80'	117	Own.	6-3 1/2 x 4 1/4	23.4	194 L	L	80-3200 5.0	Ch.	Al.	Al.	4	Y	PG	N	N	N	N	N	D-R	D-R	P. Long.	Own.	m-U.P.	Col.	4.6	D	E-T	H	Ross	V-48	Ad	Ad—Adams
Cunningham	Imperial '80'	117	Own.	6-3 1/2 x 4 1/4	23.4	194 L	L	80-3200 5.0	Ch.	Al.	Al.	4	Y	PG	N	N	N	N	N	D-R	D-R	P. Long.	Own.	m-U.P.	Col.	4.6	D	E-T	H	Ross	V-48	Ad	Ad—Adams
Cunningham	Imperial '80'	117	Own.	6-3 1/2 x 4 1/4	23.4	194 L	L	80-3200 5.0	Ch.	Al.	Al.	4	Y	PG	N	N	N	N	N	D-R	D-R	P. Long.	Own.	m-U.P.	Col.	4.6	D	E-T	H	Ross	V-48	Ad	Ad—Adams
Cunningham	Imperial '80'	117	Own.	6-3 1/2 x 4 1/4	23.4	194 L	L	80-3200 5.0	Ch.	Al.	Al.	4	Y	PG	N	N	N	N	N	D-R	D-R	P. Long.	Own.	m-U.P.	Col.	4.6	D	E-T	H	Ross	V-48	Ad	Ad—Adams
Cunningham	Imperial '80'	117	Own.	6-3 1/2 x 4 1/4	23.4	194 L	L	80-3200 5.0	Ch.	Al.	Al.	4	Y	PG	N	N	N	N	N	D-R	D-R	P. Long.	Own.	m-U.P.	Col.	4.6	D	E-T	H	Ross	V-48	Ad	Ad—Adams
Cunningham	Imperial '80'	117	Own.	6-3 1/2 x 4 1/4	23.4	194 L	L	80-3200 5.0	Ch.	Al.	Al.	4	Y	PG	N	N	N	N	N	D-R	D-R	P. Long.	Own.	m-U.P.	Col.	4.6	D	E-T	H	Ross	V-48	Ad	Ad—Adams
Cunningham	Imperial '80'	117	Own.	6-3 1/2 x 4 1/4	23.4	194 L	L	80-3200 5.0	Ch.	Al.	Al.	4	Y	PG	N	N	N	N	N	D-R	D-R	P. Long.	Own.	m-U.P.	Col.	4.6	D	E-T	H	Ross	V-48	Ad	Ad—Adams
Cunningham	Imperial '80'	117	Own.	6-3 1/2 x 4 1/4	23.4	194 L	L	80-3200 5.0	Ch.	Al.	Al.	4	Y	PG	N	N	N	N	N	D-R	D-R	P. Long.	Own.	m-U.P.	Col.	4.6	D	E-T	H	Ross	V-48	Ad	Ad—Adams
Cunningham	Imperial '80'	117	Own.	6-3 1/2 x 4 1/4	23.4	194 L	L	80-3200 5.0	Ch.	Al.	Al.	4	Y	PG	N	N	N	N	N	D-R	D-R	P. Long.	Own.	m-U.P.	Col.	4.6	D	E-T	H	Ross	V-48	Ad	Ad—Adams
Cunningham	Imperial '80'	117	Own.	6-3 1/2 x 4 1/4	23.4	194 L	L	80-3200 5.0	Ch.	Al.	Al.	4	Y	PG	N	N	N	N	N	D-R	D-R	P. Long.	Own.	m-U.P.	Col.	4.6	D	E-T	H	Ross	V-48	Ad	Ad—Adams
Cunningham	Imperial '80'	117	Own.	6-3 1/2 x 4 1/4	23.4	194 L	L	80-3200 5.0	Ch.	Al.	Al.	4	Y	PG	N	N	N	N	N	D-R	D-R	P. Long.	Own.	m-U.P.	Col.	4.6	D	E-T	H	Ross	V-48	Ad	Ad—Adams
Cunningham	Imperial '80'	117	Own.	6-3 1/2 x 4 1/4	23.4	194 L	L	80-3200 5.0	Ch.	Al.	Al.	4	Y	PG	N	N	N	N	N	D-R	D-R	P. Long.	Own.	m-U.P.	Col.	4.6	D	E-T	H	Ross	V-48	Ad	Ad—Adams
Cunningham	Imperial '80'	117	Own.	6-3 1/2 x 4 1/4	23.4	194 L	L	80-3200 5.0	Ch.	Al.	Al.	4	Y	PG	N	N	N	N	N	D-R	D-R	P. Long.	Own.	m-U.P.	Col.	4.6	D	E-T	H	Ross	V-48	Ad	Ad—Adams
Cunningham	Imperial '80'	117	Own.	6-3 1/2 x 4 1/4	23.4	194 L	L	80-3200 5.0	Ch.	Al.	Al.	4	Y	PG	N	N	N	N	N	D-R	D-R	P. Long.	Own.	m-U.P.	Col.	4.6	D	E-T	H	Ross	V-48	Ad	Ad—Adams
Cunningham	Imperial '80'	117	Own.	6-3 1/2 x 4 1/4	23.4	194 L	L	80-3200 5.0	Ch.	Al.	Al.	4	Y	PG	N	N	N	N	N	D-R	D-R	P. Long.	Own.	m-U.P.	Col.	4.6	D	E-T	H	Ross	V-48	Ad	Ad—Adams
Cunningham	Imperial '80'	117	Own.	6-3 1/2 x 4 1/4	23.4	194 L	L	80-3200 5.0	Ch.	Al.	Al.	4	Y	PG	N	N	N	N	N	D-R	D-R	P. Long.	Own.	m-U.P.	Col.	4.6	D	E-T	H	Ross	V-48	Ad	Ad—Adams
Cunningham	Imperial '80'	117	Own.	6-3 1/2 x 4 1/4	23.4	194 L	L	80-3200 5.0	Ch.	Al.	Al.	4	Y	PG	N	N	N	N	N	D-R	D-R	P. Long.	Own.	m-U.P.	Col.	4.6	D	E-T	H	Ross	V-48	Ad	Ad—Adams
Cunningham	Imperial '80'	117	Own.	6-3 1/2 x 4 1/4	23.4	194 L	L	80-3200 5.0	Ch.	Al.	Al.	4	Y	PG	N	N	N	N	N	D-R	D-R	P. Long.	Own.	m-U.P.	Col.	4.6	D	E-T	H	Ross	V-48	Ad	Ad—Adams
Cunningham	Imperial '80'	117	Own.	6-3 1/2 x 4 1/4	23.4	194 L	L	80-3200 5.0	Ch.	Al.	Al.	4	Y	PG	N	N	N	N	N	D-R	D-R	P. Long.	Own.	m-U.P.	Col.	4.6	D	E-T	H	Ross	V-48	Ad	Ad—Adams
Cunningham	Imperial '80'	117	Own.	6-3 1/2 x 4 1/4	23.4	194 L	L	80-3200 5.0	Ch.	Al.	Al.	4	Y	PG	N	N	N	N	N	D-R	D-R	P. Long.	Own.	m-U.P.	Col.	4.6	D	E-T	H	Ross	V-48	Ad	Ad—Adams
Cunningham	Imperial '80'	117	Own.	6-3 1/2 x 4 1/																													

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CADILLAC MOTOR CAR COMPANY

Detroit, Michigan

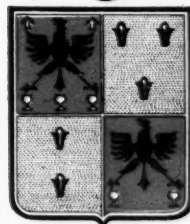
Division of General Motors Corporation

Oshawa, Canada

Mechanical Specifications of Current Passenger Car Models—Continued

[illegible]

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IN the annals of the automobile industry, there is no experience on record that equals or even approaches the speed with which the De Soto Six dealer organization has been built. ♠ ♠ Less than six months have passed since dealers first learned that Walter P. Chrysler and his associates planned to present a new six-cylinder car, to be known as the De Soto Six. ♠ ♠ In this short period of time, a dealer organization of nation-wide scope has been created. And almost without exception, these De Soto dealers have enjoyed the unusual experience of finding their car quotas and profit expectations consistently exceeded by an immediate and rapidly growing demand. ♠ ♠ There is still an opportunity for able established merchants to secure the De Soto Six franchise in open territories. All communications will be held in strict confidence.

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{Division of Chrysler Corporation} Detroit, Michigan

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Effective December 1st, the Chilton Class Journal Company announce the consolidation of *Automobile Trade Journal* and *Motor Age* into one outstanding monthly automotive trade publication, to be known as "*Automobile Trade Journal and Motor Age*."

This will provide at once the greatest paid circulation, more than 60,000 — almost double the net paid trade circulation of the next nearest competitor — plus the most responsive body of readers available in any single pub-

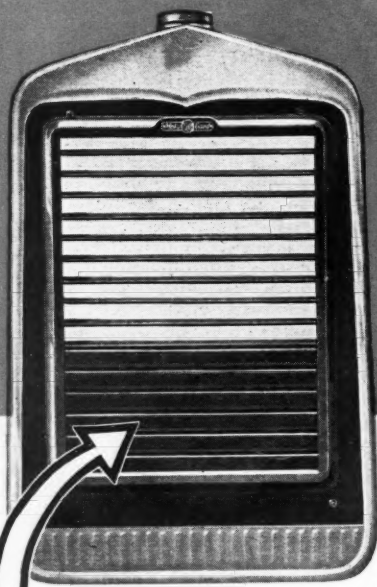
lication in the automotive field. The result: a bigger and better monthly automotive trade publication; 4-color covers; standard size over-all—7" x 10" type page size; unequalled buying power; outstanding circulation and editorial achievement; combination of the best features of both, plus many new services never before achieved.

Let us point out to you the great opportunity and economy available for you through "*Automobile Trade Journal and Motor Age*."

Headquarters —

AUTOMOBILE TRADE JOURNAL
and
MOTOR AGE

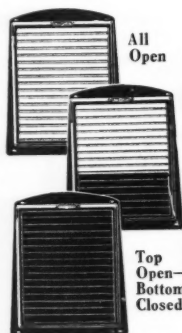
A Chilton Class Journal Publication
Chestnut and 56th Streets, Philadelphia, Pa.



HERE is a shutter for all cars—a proved success and a demonstrated sales builder. It will bring you added prestige with your customers. Many vital features make Moto-Gard a quick and steady seller.

EXTRA PROTECTION

Water cools first, and freezing starts, at the bottom of the radiator. It's there that extra protection is needed. Moto-Gard's lower leaves can be closed, while the upper leaves remain open to admit air to the engine.



TRIPLE SERVICE

Moto-Gard permits close regulation of the water temperature. In average winter weather open the top leaves and close the lower. Mild?—open all leaves. Bitter cold?—close them all—and do the same when parking.

All Closed

Visible Dash Control

As you turn the nickel thumb screw, every degree of opening of the shutter, down to 1/32 of an inch, if desired, is accurately recorded on the attractive indicator dash control.



Six Additional Features

- One-Piece Frame**—not riveted, bolted or welded.
- Leaves Open Inwardly**—compact built-in appearance.
- Tension Spring**—on each side prevents the leaves from rattling.
- Air-Tight**—no cracks around edges or between leaves.
- Concealed Mechanism**—no parts exposed.
- One-Piece Shutter Leaves**—stamped from heavy gauge steel.

Order Now!

Moto-Gard

The Triple Service Shutter

Through These Exclusive Distributors

COLORADO
Denver, Moore Hardware & Iron Co.

DIST. OF COLUMBIA
Washington, F. P. May Hardware Co.

ILLINOIS
Chicago, Bruns & Collins, Inc.

INDIANA
Fort Wayne, Mossman-Yarnelle Co.
Indianapolis, Fabric Products Corp.

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Baltimore, J. R. Hunt & Co.

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Billings, Northwestern Auto Supply Co.
Helena, A. M. Holter Hardware Co.

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Albany, Detroit Supply Co.
Binghamton, Rose Unit Parts Corp.

Buffalo, Buffalo Bumper Sales Co., Inc.
New York, Clark Equipment Co.
Rochester, Chapin-Owen Company
Syracuse, Onondaga Auto Supply Co.
Utica, Utica Gear and Auto Parts Corp.

OHIO
Canton, Carburetor Sales & Service
Cincinnati, Julius J. Bantlin Co.
Cleveland, Ohio Spring Co.
Columbus, J. H. and F. A. Sells Co.
Toledo, The Mather Battery Co.

OREGON
Portland, Jas. F. Morrell & Co., Inc.

PENNSYLVANIA
Philadelphia, The W. P. Sales Co.
Pittsburgh, The H. T. Miller Co.
Scranton, Shock Absorber Co. of Penn.
Williamsport, Williamsport Auto Parts Company

RHODE ISLAND
Providence, W. R. Burns Co.

UTAH
Salt Lake City, Inter-Mountain Elec. Co.

VIRGINIA
Richmond, Stebbing & Pauli Corp.

WASHINGTON
Seattle, Automobile Trimmers Sup. Co.
Spokane, Holley-Mason Hardware Co.
Yakima, Yakima Hardware Co.

WEST VIRGINIA
Clarksburg, Blair Motor Supply Co.
Parkersburg, A. E. Supply Co.
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WISCONSIN
Milwaukee, Reichardt Auto. Sup. Co.

CANADA
Montreal, Cutten & Foster Ltd.
Ottawa, Fred Lake
Toronto, G. A. Prior Ltd.
Winnipeg, D. Ackland & Son, Ltd.

The Brewer-Titchener Corporation
401 Port Watson Street
Cortland, New York

THREE THINGS

NO DEALER CAN DO WITHOUT

THE New Series "68" and "78" struck an immediate response with the public ... The last ninety days have been way beyond any similar period in the history of the company... And this month so far gives all appearances of a new high Marmon record ... You just simply can't beat *striking style, advanced performance and proved dependability*... In fact, it's hard

to get along without them—*all three, of these things.*

There are hundreds of dealers now handling lines and good lines, too, yet without half the sales appeal of the Marmon. To these dealers we extend an invitation to make an investigation of Marmon for their territory. We are confident that you'll find no proposition more favorable to immediate profit.

*Please address your nearest Marmon distributor or the
factory — Marmon Motor Car Company,
Indianapolis, Indiana*

NEW SERIES

MARMON

NEW SERIES 68, \$1465. NEW SERIES 78, \$1965. PRICES F. O. B. FACTORY. DE LUXE EQUIPMENT EXTRA

Plymouth

CHRYSLER

Share In This Tide of PLYMOUTH Sales!

Plymouth demand continues to grow so that even with the enormous facilities of all the huge plants now under Chrysler management, production is still short of filling 100 per cent all the orders that an enthusiastic public has placed and is placing.

But the whole situation spells an enormous volume of sales and profit possibilities for Plymouth dealers not only

now but for as far into the future as anyone can estimate.

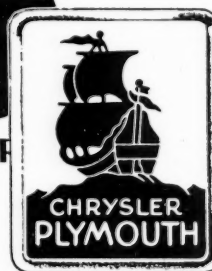
You owe it to yourself, therefore, to see if there is an opportunity for you to obtain a share in the wealth that this overwhelming demand for Plymouth is giving to thousands of dealers the country over.

Wire, write or phone and we will acquaint you with the possibilities for your territory.

\$675

AND UPWARD

f. o. b. Detroit

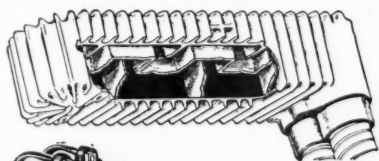


PLYMOUTH MOTOR CORPORATION, DETROIT, MICHIGAN
(Division of Chrysler Corporation)



HOW IT'S MADE

Special cast iron heating element with 400 square inches of heat-radiating surface, dissipates the heat of the exhaust pipe.



Knapp Sedan fan. Self aligning bronze bearings. Full wick oiling. Runs a year without attention. 6-volt, 3-amp.



Specially tempered valves set in exhaust pipe which divert exhaust up through the heater.

THIS GREAT HEATER is the dealer's answer to the most exacting demands of fine car owners. It does everything they can expect of a heater and it looks right "at home" in the finest of cars.

Fits All Fine Cars

Retail Price **\$35** Full case lot discount on one or more

There's an Arvin Heater for every car—\$1.75 to \$35.00

Get from your jobber, or from us, the ARVIN DEALER COOPERATION PLAN

HOW IT WORKS

With a specially tempered positive control valve, adaptable to fit all exhaust pipes of large cars, the exhaust fire is directed up through the special heating element in the register illustrated above. This absorbs practically all the heat of the exhaust.

An electric fan is placed at the end of the heating element, under the cover plate. This induces cool air from inside the car, forces it over the heating element and up into the passenger compartment, delightfully warm.

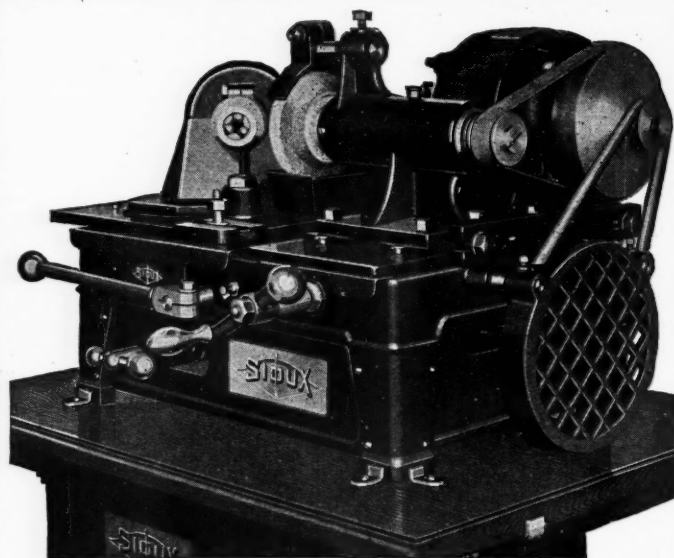
It heats a large car in 5 to 10 minutes—and it continues to heat for 30 to 60 minutes after the motor is stopped.

NOBLITT-SPARKS INDUSTRIES, Inc., INDIANAPOLIS, INDIANA

Formerly Indianapolis Pump and Tube Company

VALVE FACE GRINDING MACHINE

with the
**Sioux Roller
Chuckling System**



No. 620 for valves of any angle with stems of 1-4" to 1-2" diameter. Net price..... **\$145**

NOW- a new Sioux Valve Grinding

Machine that handles a wide range of valve stem sizes, including the new Ford valve—and grinds valves of any angle. The exclusive Sioux Roller Chuckling System assures the most *accurate* work with the greatest *speed*; it is self-aligning, grips the valve stem at the proper place [just above the worn surface] and holds it rigidly centered.

If you want to meet present day competition and pocket larger net profit on flat rate charges for valve work—investigate the SIOUX.

Your Jobber Sells It ALBERTSON & CO.
Sioux City, Iowa, U. S. A.



for sale..



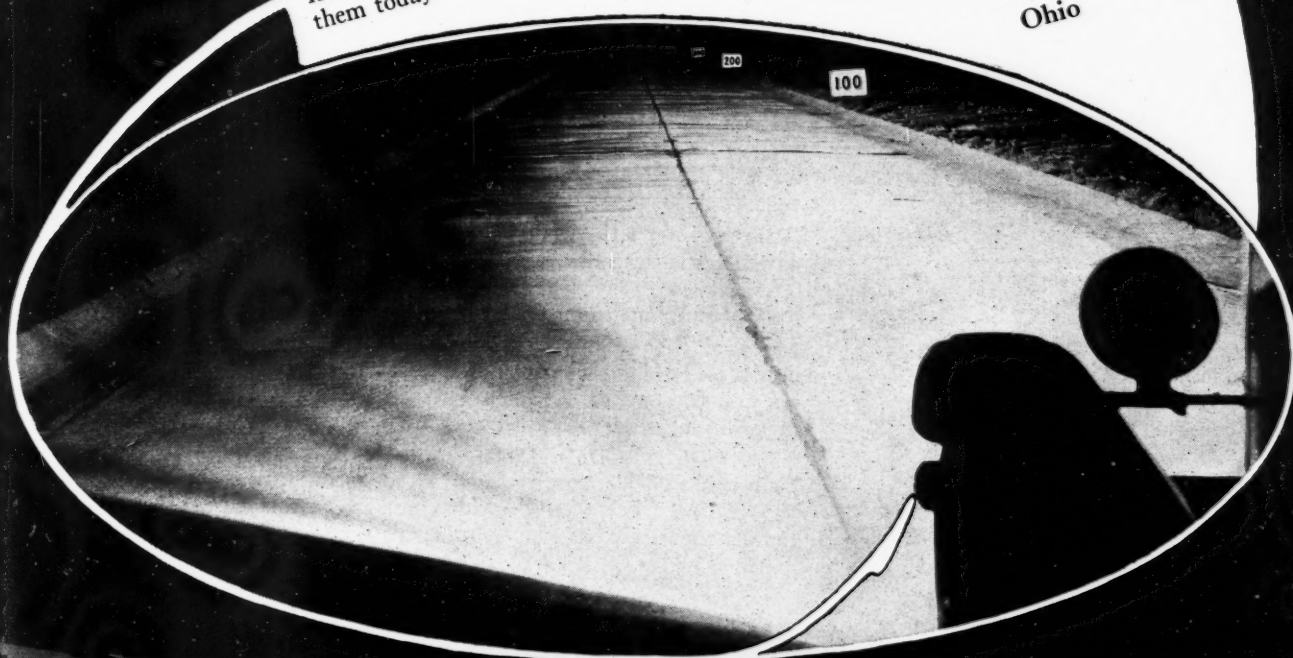
YES, you've got more than you need in the Bright Bumper. Yet it's so accurately controlled it won't blind the other fellow either.

You could drive down in the blackest Hades (if you were going that way) and see every hole in the old pavement of "good intentions."

What motorist can be contented with antiquated road light when he can get a "Bright" road-analyzer? At the price of any good bumper, too.

Selling surplus driving light is proving mighty profitable to dealers. And, that's a factor of vital importance to you. Get the low-down on the bumper with safety driving lights. When you've got the facts you'll want the franchise. We'll wager a flashlight against a candle on that. Write for them today.

**The Warren Tool &
Forge Company**
500 Griswold St.
Warren
Ohio



What Does Direct Mail Addressing Cost You ?

Can you get accurate production figures which will cover:

1. Cost of Addressing to Dead Names?
2. Cost of Addressing to Improperly Classified Names?
3. Cost of Making Selections from Your List?
4. Cost of Errors Made by Inexperienced Help?
5. Cost of Keeping Your List Up to Date?
6. Cost of Omitting Good Names Which Are Not on Your List?

The Chilton Automotive List of 135,000 Names Is Corrected Daily

Over 20,000 Names are dropped each year.

Over 25,000 Names are added each year.

Over 50,000 Names and addresses are changed each year.

A force of more than 100 people are kept busy every day to accomplish this, with the result that the Chilton List—with over 95,000 changes each year—is the outstanding leader in its field.

Mechanical equipment makes selections to suit your needs, and complete printing, multigraphing, binding and creative art and copy service are available, in addition to merchandising counsel of our representative in your territory.

You will find a distinct saving in addressing from the Chilton List. Write us for complete details as applied to your particular requirements.

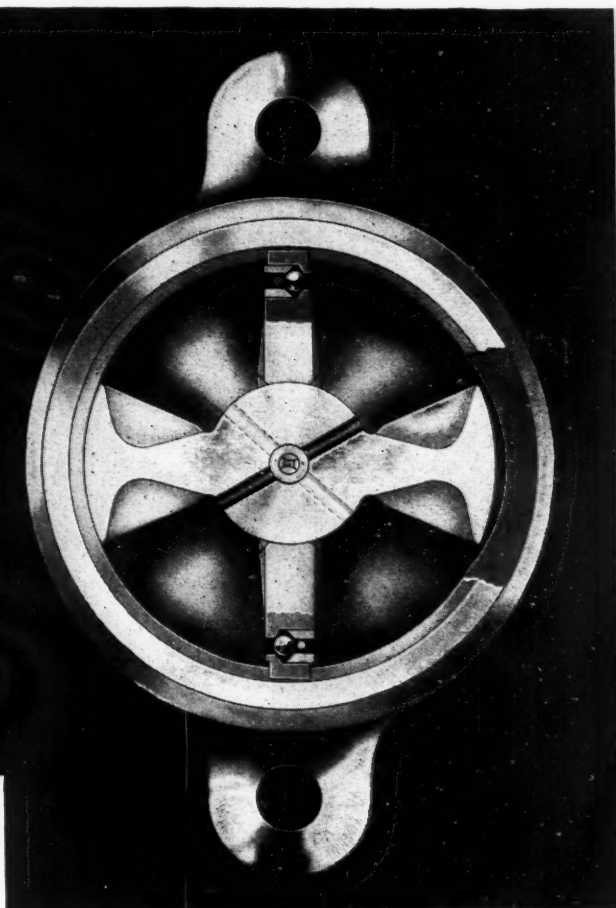
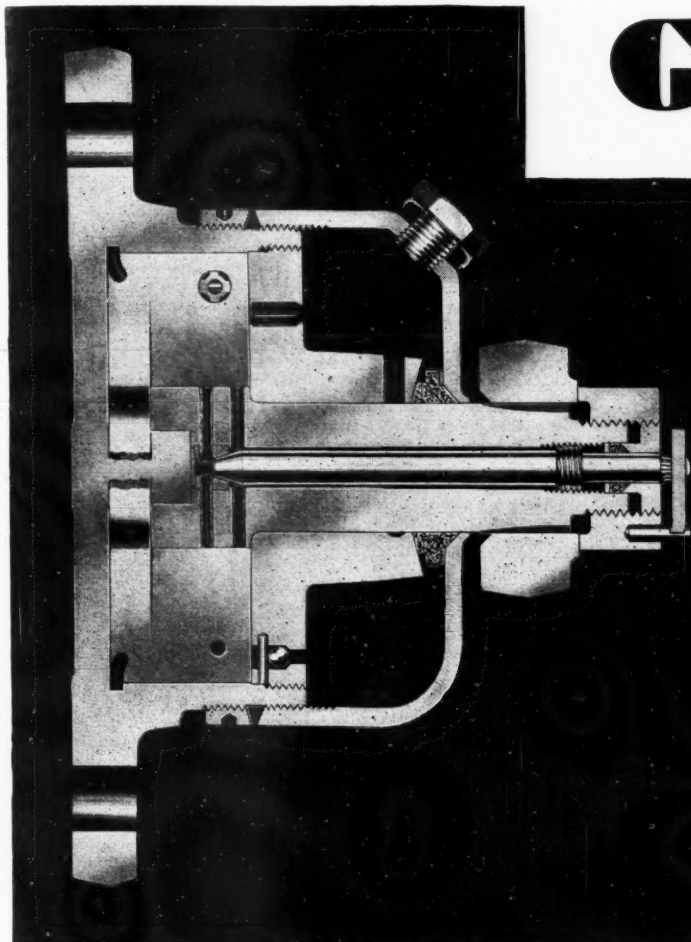
CHILTON CLASS JOURNAL COMPANY

Direct Mail Division

Chestnut and 56th Streets

Philadelphia, Pa.

IF THEY COULD BE MADE OF GLASS...



instead of DROP-FORGED STEEL

EVERYBODY would easily see the many patented features that make critical car owners say, "You can only compare a Houdaille with a Houdaille." The phantom views put the X-ray on Houdaille design for you. They show...

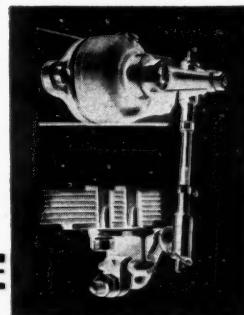
1. Their Hydraulic Double-Acting working chambers that control compression as well as recoil of car springs.
2. Their one moving part constantly lubricated by fluid under tremendous pressure.
3. Their adjustment needle valve that fits every instrument to the spring action of each individual car.
4. The total absence of straps, cables, friction surfaces and packing to hold against pressure.
5. Their freedom from the necessity for relief valves to protect the instrument on big bumps when you need greatest resistance most.

Those are a few proven reasons why you can only compare a Houdaille with a Houdaille. If you want the cream of the shock absorber business sell Houdailles. Your territory may be open on a direct-with-the-factory basis.

HOUDAILLE

Hydraulic Double-Acting

SHOCK ABSORBERS



HOUDE ENGINEERING CORPORATION,

Dept. MA-10

537 E. Delavan Ave., Buffalo, N. Y.

In Canada: 222 Simcoe St., Toronto, Ont.

Please send me full details of the Houdaille Sales Plan.

Name.....

Address.....

Town.....

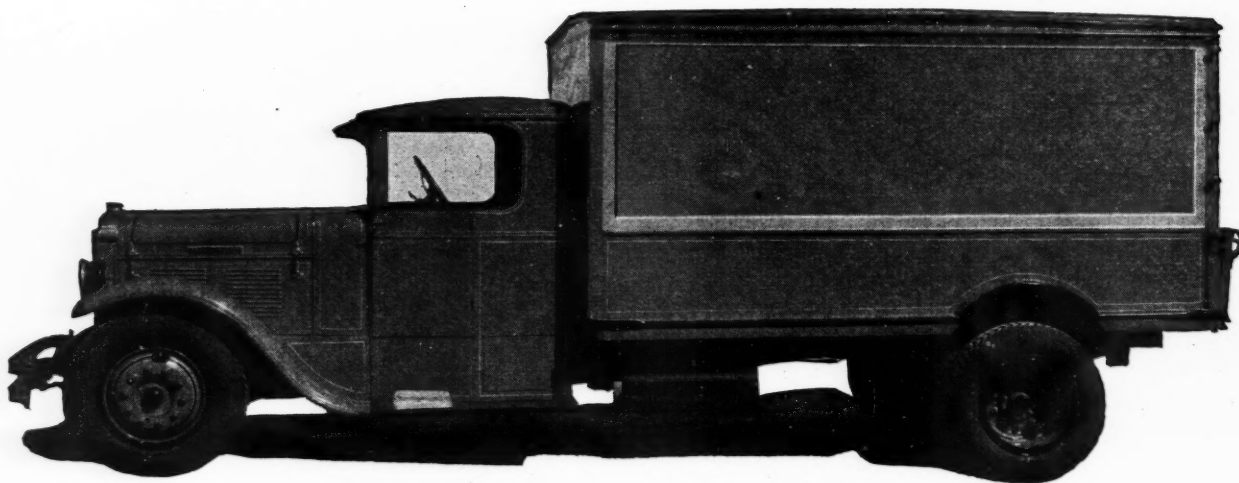
DIAMOND T build "Motor Trucks of Quality"

They buy on the same basis

Budd Wheels are standard on all Diamond T Trucks with dual pneumatic tires. They will remain standard as long as they continue to be the finest wheels that we can buy.

W. E. Budd

DIAMOND T MOTOR CAR CO.



Where low cost of operation is the primary consideration you will invariably find Budd wheels specified by the discriminating buyer, whether operator, dealer, or manufacturer.

BUDD DUALS

Can't
wobble—



Can't
shimmy—



And
they stop
side-sway!



BUDD WHEEL COMPANY, DETROIT

Goerlich's Universal Muffler

**Guaranteed against
Blow-Out!**

**Fits ALL Cars
and Trucks
with 2
Sizes**

Your Goerlich
Muffler Jobber
can always give you
immediate service on
the muffler you need
for ANY make or model of car
or truck and it's a better muffler
too. Write for circular today.

Jobbers: If no obsolescence; no
lost sales; small invest-
ment in stock and space with quick turn-
over and a good profit mean anything
to you, write for the GOERLICH propo-
sition.

Goerlich's
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Toledo, Ohio

SHARP PERFECT PISTON RESIZER



**30
Day
Free
Trial**

Oversizes or undersizes any
Lynite, permite, aluminum or
Bohnalite piston, without dis-
tortion.
Stops oil pumping, piston slap
and compression leak.
Resizes set of pistons quicker
than new ones can be fitted. Less
than 30 minutes required.
Preserves round shape of piston
and smooth oil finish.
No waiting for new pistons.
Pays for itself on first job.
ESSEX SIZE \$ 8.00
CHEVROLET 9.75
NEW FORD 10.00
Net Delivered
Sizes for other cars proportion-
ately low. Order direct or through
your jobber.

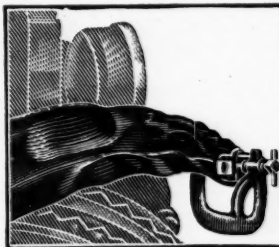
**SHARP AUTOMOTIVE
SPECIALTIES CORP.**
1255 Kansas Ave.
Kansas City, Kansas

THE ONLY TOOL OF ITS KIND

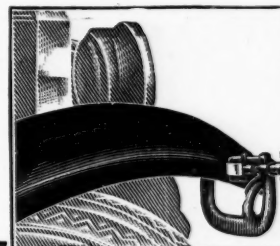


**The busiest dealers with-
in the automotive indus-
try are the readers of
Motor Age.**

**It keeps them up on their
toes—alert, resourceful and
in position to recognize suc-
cess when it comes their way.**



BEFORE



AFTER

Roll out the Dents—

Profits Roll in . . .

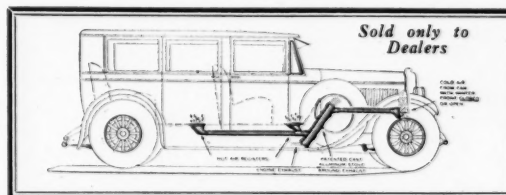
You can build yourself a nice fat source of income
on the fender repair business that you are now
missing—and with a surprisingly small investment.
The Herman unit gives you a complete fender
repair shop. Small Roller for rim and edge.
Large Rollers for top of any type fender. Sold
as one unit. Any ordinary mechanic can make
dented fenders look like new with Herman Fender
Rollers. Simply roll out the dents and the profits
roll in.

Investigate today . . . start on the road to extra
profits.

Stiles-Herman Manufacturing Co.
1710 RUSSELL BLVD.
ST. LOUIS MISSOURI

BIG PROFITS WITH the HOWARD

Safety First Fresh Air Heater



**Designed and Built Exclusively
for the Following Cars**

Lincoln	Hupmobile 6	Chrysler No. 80
Cadillac	Hupmobile 8	Chrysler No. 72
La Salle	Dodge 4	Auburn 8-88
Stutz	Dodge 6	Buick Master
Pierce Arrow	Packard 6	Buick Standard
Marmon 6	Packard 8	Ford

Made of Solid Cast Aluminum

All bad features of the stamped sheet metal tin can, makeshift,
rattle producing, so-called heating contraptions have been en-
tirely overcome. The HOWARD Safety First Fresh Air Heater
has no working parts, being built of solid cast aluminum—the
best heat conductor. All "Howards" are made with front and
rear compartment openings, except Ford which has front only.
Order Your Stock Today.


Manufactured by
HOWARD FOUNDRY
Pattern Makers, Founders, Machinists
2701 FULTON ST., CHICAGO, ILL.

clean with

MAKE the washrack pay better. Use Oakite Composition No. 1 in your spray cleaning outfit. The speed with which this effective material removes dirt, grease, oil and traffic film will enable you to turn out more wash jobs—and to make more money on every one! Booklet mailed on request. No obligation.

Manufactured only by
OAKITE PRODUCTS, INC.
18E Thames Street New York, N. Y.

OAKITE
Industrial Cleaning Materials and Methods




A waving red light is the universal danger signal. Here is a positive warning stop light, with positive profits. Write today for complete information.

The ILER ELECTRICAL MFG. CO.
5103 Lakeside Avenue, Cleveland, Ohio

Model A-AA
for
Passenger Cars

COWL SADDLE LIGHTS and BANDS



In stock for all makes of cars
Easy to install Good discount

The ARMSTRONG CO.
6340 PENN AVE. E.E. PITTSBURGH, PA.

When temperature is below 60° Fahrenheit every motor that runs needs the protection of

Pines Automatic Winterfront

For complete selling information write your nearest distributor or direct to
PINES WINTERFRONT CO., 422 N. Sacramento Blvd., Chicago, Ill.

CARBURETER

1,000,000 a year going into service
CARTER CARBURETOR CORPORATION, ST. LOUIS

The Easy Riding Device That Does Not Allow the Throw to Get Started

WATSON STABILATORS
John Warren Watson Co. Phila., Pa.

MONOGRAM
Radiator Caps
GEAR SHIFT BALLS, ORNAMENTS
THE KINGSLEY-MILLER COMPANY • CHICAGO



Neil's
Rewound Armatures
NEIL ARMATURE CO. CANTON, O.

Weidenhoff
SHOP EQUIPMENT for
BATTERY and ELECTRICAL SERVICE
Test Benches • Rectifiers • Constant Potential Battery Chargers • Lathes
Battery Testers • Mix Undercutters • Growlers
4358 Roosevelt Road Chicago, Illinois

NEW! MOBILATOR NEW!
Automatic Starter Control
THE GREATEST AUTO DEVELOPMENT IN RECENT YEARS—
just push in the clutch to start your motor. Write for particulars. Distributors wanted.
MOBILATOR CORP., 2816-333 N. Michigan Ave., Chicago

\$5.00 Buys an Oil Burner for Your Stove
Burns crankcase drainings or any cheap fuel oil. Guaranteed for 5 years, to heat as hot as coal or wood fire. Simple, Safe and Easy to install. Order now. State diameter of fire bowl. (Furnace Burners \$15.00).
The Staples Oil Burner Co., Evansville, Ind.

There's always something new just at hand for the regular reader of
MOTOR AGE

CLASSIFIED ADVERTISEMENTS AND BUSINESS OPPORTUNITIES

NEW MOTORS: General Electric ¼ H. P., \$9.50; ½ H. P., \$26.00; 1 H. P., \$38.50. Mail \$3.00—will ship C.O.D. anywhere.
MOTOR SPECIALTIES CO., Crafton, Pa.

FOR SALE—Miller race car, formerly owned by Tommy Milton. Holds three world's records. Fine condition, ready to race. Has \$2,500 worth of extra parts. Priced for quick sale with truck, \$2,450.
H. KOHLERT, St. Charles, Ill.

PATENT ATTORNEYS
PATENT-SENSE—Valuable book (free) for inventors seeking largest deserved profits. Established 1869. Lacey & Lacey, 702 F St., Washington, D. C.

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The Advertisers' Index is published as a convenience, and not as a part of the Advertising contract. Every care will be taken to index correctly. No allowance will be made for errors or failure to insert.

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Buy your next PROTEXALL ONE PIECE SUITS from your jobber

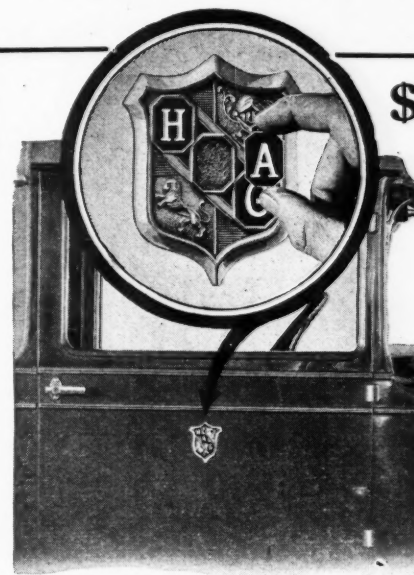
Protexalls are supplied you by reliable, established jobbers. Your local jobber endorses them and stands ready to make good. Depend on your jobber. His service is available every day in the year.

Exhibit at Space 211
A. E. A. Show

The
Protexall Co.
ABINGDON, ILL.
100 N. Main St.



"Jobber Salesman"



**\$2.25 to
\$3.50
profit
on
every
set**

Six exclusively designed styles for the larger cars, such as Cadillac, Packard, Buick, Studebaker, Nash, etc., known as the Standard series.

Attractive Display Frame

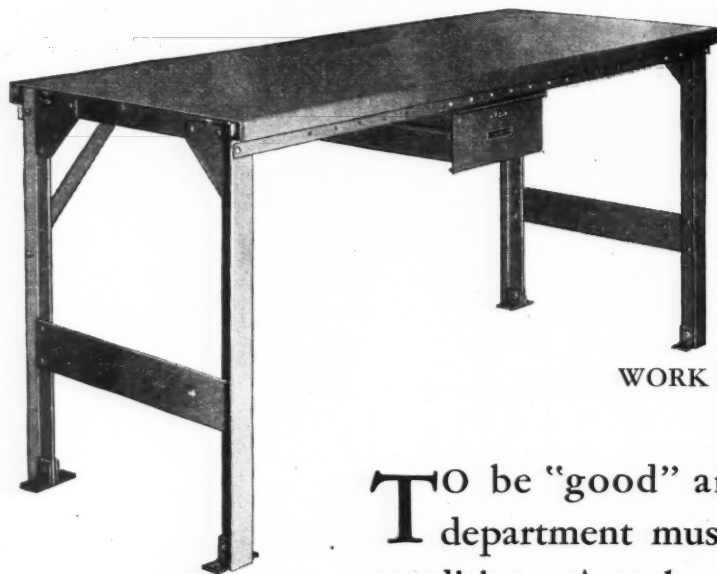
With an original order for 18 pairs of assorted Standard crests and 200 assorted initials and lodge emblems—total cost \$33.00 we furnish free an expensive display frame containing six sample crests and convenient stock box. Send \$1 for sample monogram (retail price \$5.00).

FREE!

UNIVERSAL MONOGRAM CO.
4424 Broadway Chicago, Ill.
Export Office: 126 Liberty St., New York City

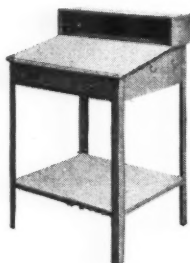
**UNIVERSAL
MONOGRAMS**

LYON



WORK BENCH

Steel Shelving... Lockers... Cabinets... Counters... Steelart Folding Tables and Chairs. General Steel Storage Equipment and Steel Furniture. The Lyon name and trade mark attest the strength, finish, usefulness and durability of Lyon Steel Products

TOOL
STANDFOREMAN'S
DESK

TO be "good" and also "fast" a service department must have favorable working conditions. A tool must be stored so that it can be found quickly and in usable condition. Work benches must be rigid and lasting. Lyon has spent much time in developing the kind of shop equipment that will speed up your work and cut your costs. And Lyon makes such equipment so lasting that you can buy none that is more economical. Your automotive jobber can help you modernize with Lyon or you may write us for Lyon Bulletin No. 548. Better do so, today.

LYON METAL PRODUCTS, INCORPORATED, AURORA, ILLINOIS

DURAND STEEL LOCKER CO.
Chicago Heights, Ill.

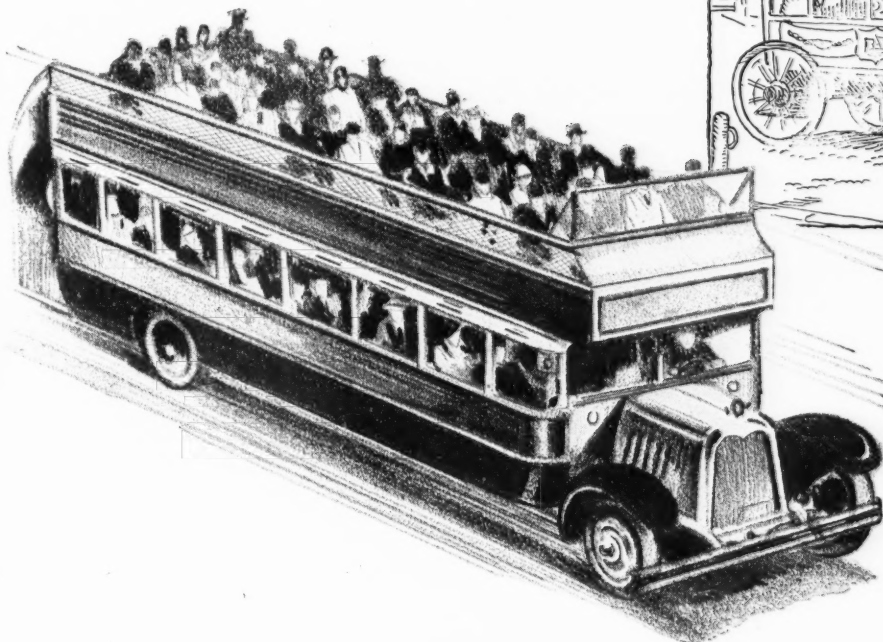
Successor to:

LYON METALLIC MFG. CO.
Aurora, Ill.

STEEL STORAGE



EQUIPMENT



All The Coach **Horses** And All The Coach **Men**

—couldn't stop one of to-day's heavy, fast-moving buses. When lights flash red on busy streets, powerful, dependable brakes are needed—such as you get only with

GRAFILD BRAKE LINING

NEW AND DIFFERENT
MATERIALS AND CONSTRUCTION

Holds Wet or Dry

RELIN BRAKES OFTEN



Send in this coupon for complete information

Name _____ Address _____
WORLD BESTOS CORPORATION, 52 Courtland Street, Paterson, N. J.

25 YEARS *of* *Engineering* *Excellence*

Buick's mechanical superiority has always been a mighty asset to Buick dealers.

The job of selling Buicks has become easier each year, for every Buick sold has confirmed the public's high regard for Buick.

Now, in addition to introducing a new vogue in motor car body design, Buick has capped 25 years of engineering excellence with a car of brilliant performance . . . a car which is literally taking the country by storm.

The Buick dealer franchise is worth more today than ever before in Buick history.

BUICK MOTOR CAR COMPANY, FLINT, MICHIGAN
Division of General Motors Corporation

*Those Who Desire the Buick Franchise
Should Have Their Names on File*

THE SILVER ANNIVERSARY BUICK

WITH MASTERPIECE BODIES BY FISHER



